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OUR AUTHORS

Colonel Maddrey A. Solomon became an instructor at the C&GSC in 1947. In 1949, he attended the National War College and, on graduating, became an instructor at the Army War College. He is the author of "The Army Group G3 Section" which appeared, together with his biography, in the September 1949 issue of the MILITARY REVIEW.

Lieutenant Colonel Karl F. Eklund wrote "The Nature of Total War" which appeared in the April 1950 issue of the MILITARY REVIEW. During World War II, his assignments included service as Chief of Engineer Supply for POA and FEC. He holds a masters degree in engineering from Cornell University, and has been an instructor at the C&GSC since July 1949.

Colonel Theodossios Papathanasiades is Chief of the Greek General Staff Operations Office. He participated in the Greco-Turkish and Greco-Italian Wars, being wounded in each conflict. During the German occupation of Greece in World War II, he was active as a member of the National Resistance Organization. While fighting against the guerrillas, Col. Papathanasiades was, successively, Chief of the Operations Section of a Corps and Army. In May 1950, he was awarded the Legion of Merit, Degree of Legionnaire, by the US Government.

Major Hal D. Steward served in the South and Southwest Pacific during World War II as an infantry company commander, regimental S2, and a member of the Public Information Section, GHQ. Since 1948, he has been the PIO of the 1st Cavalry Division (Infantry), a position he also occupied during the last War. Editor, newspaperman, he is the author of the history of the 11th Armored Division in World War II.

Lieutenant Colonel Thomas O. Rooney was assigned during World War II to the 1st Armd Div where he served successively as an aide to its CG, executive officer and then commanding officer of the 81st Reconnaissance Battalion. In 1947, Colonel Rooney was the instructor for armored ORC units in the MDW. He became an instructor at the C&GSC in 1949, serving there until ordered, in 1950, to the Student Detachment, AFSC.

Lieutenant Colonel Delbert L. Bjork has been an instructor at the C&GSC since 1948. During World War II, he was with the 7th Inf Div, serving as platoon, company, and battalion commander. He participated in many amphibious operations including the Aleutians, Eastern Mandates—Kwajalein, Leyte, and Ryukus—Okinawa. Colonel Bjork is a graduate of the University of Oregon receiving a masters degree in science in 1939.

Lieutenant Colonel Everett A. Luckenbach has been an instructor at the C&GSC since 1949. He served 53 months in the ETO during and after World War II. In 1947, he became Chief of the Receiving Section and Commanding Officer of the Receiving Battalion 3d Armd Div (Training), holding these positions until assigned to Fort Leavenworth.

The Army War College

Colonel Maddrey A. Solomon, *Artillery*
Instructor, Army War College

THE complexities of modern warfare are ever changing and demanding on the professional knowledge of all ranks in the United States Army. At every level there must be highly trained and specialized personnel. This is especially true of the officers who are to command and administer the top echelons of the Army. These officers must have a current understanding not only of strategy and tactics, but they must also possess an appreciation of economics, the political implications of military decisions, the organization and the complex nature of the Government, social problems, labor relations, and a host of other subjects directly and indirectly related to military operations. This is why the United States needs, and now again has, an Army War College.

The necessity for highly educated and trained army officers was foreseen by George Washington when he ordered the establishment of a military academy at West Point. This was a beginning, but it was not enough. Sometimes more was required if the Nation's Army were to progress with the rapidly growing young republic.

Army War College Established

Almost a hundred years after the United States Military Academy was established, Secretary of War Elihu Root, another statesman with military vision, recognized this further deficiency in the training of the officers of the Army. The officers in the lower echelons were comparatively well trained. Those who occupied positions on higher levels, however, were not capable of handling the problems of sudden mobilization, training, and overseas deployment. These facts were demonstrated clearly as the lessons of the Spanish-American War were studied. Secretary Root realized that such conditions must be corrected at once. Accordingly, in his annual report of 1899 he recommended, among other things, that an Army War College be established. It was through his tireless effort that such a college was founded, in 1901, in the Nation's capitol.

It was not an accident, therefore, that the United States produced the military leadership demonstrated during World War II. Few men are born with the qualifications to command in battle the hun-

The Army War College, again, is taking its rightful place in the Army's educational system, preparing selected officers for command and staff positions of great responsibility in the higher echelons of command

Elihu Root
Secretary of War, 1899-1904
Founder of the Army War College

dreds of thousands of men found in a field army. Fewer yet can co-ordinate successfully the joint effort of a theater. A combination of service, training, and military education in all echelons is essential. Elihu Root made sure that, some day, the Nation would have well-trained military leaders such as Eisenhower, Bradley, Patton, Krueger, Eichelberger, Collins, and many others ready to lead its fighting forces to victory. All of these were graduates of the Army War College.

During each of the World Wars, instruction at the Army War College was suspended. This was necessary because the officers being trained at this high level, although small in number, were needed in the immediate war effort. After World War I, classes were resumed. Upon the cessation of hostilities in 1945, however, suspension of the Army War College was followed by its cancellation due to the establishment of the National War College.

The Army recognized the value of the National War College. This educational institution was necessary in order to fulfill one of the requisites for unification. In fact, the properties of the old Army War College, the present Fort McNair in Washington, D. C., were relinquished by the War Department to the National War College. Thus it was felt, in 1946, that it would be needless to reopen the Army War College. Four years later, however, it was realized that the principles, laid down by Elihu Root when he established the College, were still prerequisites for the continued efficiency of the Army. On 3 October, 1950, once again the halls of the Army War College were reopened in a temporary home at Fort Leavenworth, Kansas. In 1951, the College will occupy its new permanent home at Carlisle Barracks, Pennsylvania.

Original Objectives

It is obvious from studying Secretary Root's recommendations that he originally hoped for a War Department General Staff as well as an Army War College. Since legislation by Congress was necessary for the creation of a General Staff, he found it politically expedient, at first, to ask only for an appropriation to create an agency to provide instruction in the higher echelons of the military profession. As additional duties, personnel of the College were also to perform what were essentially general staff functions. While this was a rather complicated situation initially, the creation of the General Staff, in 1903, relieved the College of its gen-

Major General S. B. M. Young
First President of the Army War College

eral staff responsibilities. The mission then became clearly defined along educational lines. Many of the problems solved at the College, however, remained of a War Department nature. As the years passed, slowly but surely the curriculum tended toward academic instruction. In 1921, the College attained its full stature and concerned itself only with the broad operations of field armies and the study of the highest level problems of the War Department. At this time, the curriculum included economics, politics, and social subjects necessary for a full postgraduate course in the military profession.

Present Curriculum

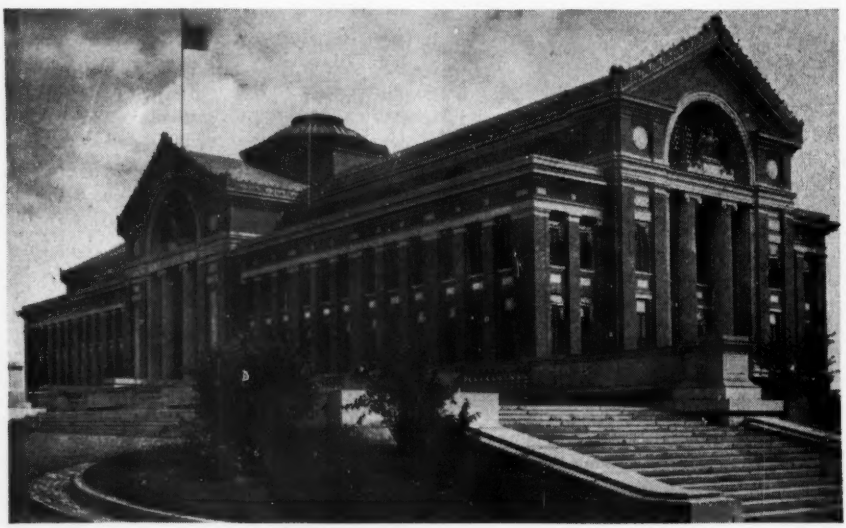
The present curriculum of the Army War College continues to fulfill the vision of its founders. The tremendous growth of the United States in the past 50 years has not changed the basic doctrine of the College. It is only in the application of those time-tested principles that changes have occurred.

The three major phases of the present academic year are The Army and National Security, Current Army Problems, and War Planning. While in each of these phases the Army aspects are stressed, every effort is made to broaden the student's background and to prepare him for the future from the viewpoint of the Department of Defense. Current domestic as well as international appraisals in the fields of economics, politics, sociology, and the military sciences continue to keep the curriculum on the graduate level.

An understanding of the technique of planning on the Department of the Army level, the lack of which led to the original conception of the College, continues to occupy a vital place in the studies. In the

First Home of the Army War College
22 Jackson Place, NW
Washington, D. C.

War Planning Phase, the student not only becomes familiar with the proper methods of war planning, but he also has a practical value. The experience which the student obtains in the committee procedure at the College will be invaluable



The Army War College Building
1906-1940
Washington Barracks
(Now Fort Lesley J. McNair)

learns to develop an appreciation of the problems attendant to the execution of the plans.

Method of Instruction

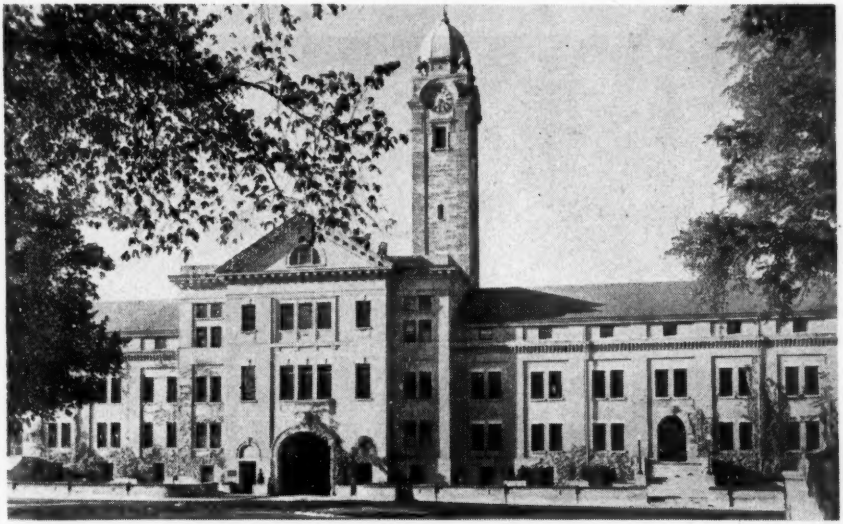
The committee system for the solution of problems is still employed at the Army War College. This method of instruction has been used for many years and its value has been recognized by leading civilian educational institutions. It is employed also by the National War College.

While this system is an excellent vehicle for instructional purposes, it also to him in future assignments with high-level staffs and governmental agencies.

The Committee System

The first step in the employment of the committee system is the initiation of the problem to be considered. This is accomplished by the faculty. Problem directives are then prepared and issued to the students. These directives normally include a statement of the problem, its scope, purpose, initial considerations, and a bibliography. This is, undoubtedly, more guidance than would be received normally

in a Department of the Army directive. It is considered to be essential from an academic viewpoint, however, because it saves the student a great amount of time.



Main Academic Building
Fort Leavenworth, Kansas
Home of the Army War College, 1950-51 Course

Due to the complexity of the problems, some students often feel that even more direction would be helpful.

With the issuance of the problem directives, the class is divided into a number of committees, each consisting of from six to eight students. Several problems, each of which pertains to the major topic under survey, are usually assigned at the same time. Normally, three or four different committees work, simultaneously, on each of the assigned problems.

While there is a faculty representative assigned to each committee to conduct seminars and to guide the committee, if it becomes necessary, the student committee chairman is in immediate charge of his group. It is the chairman's task to assign the research, and to handle the administrative functioning of the committee, throughout the solving of the problem. This includes the writing of a report which is required in each case. While the job of the committee chairman is stressed, equal emphasis is placed upon the fact that the solution to the problem is the product and responsibility, shared equally, of all members.

During the time that the students are working on their assigned problem, pertinent lectures are given by guest speakers. This formal instruction is conducted by experts in the field under consideration.

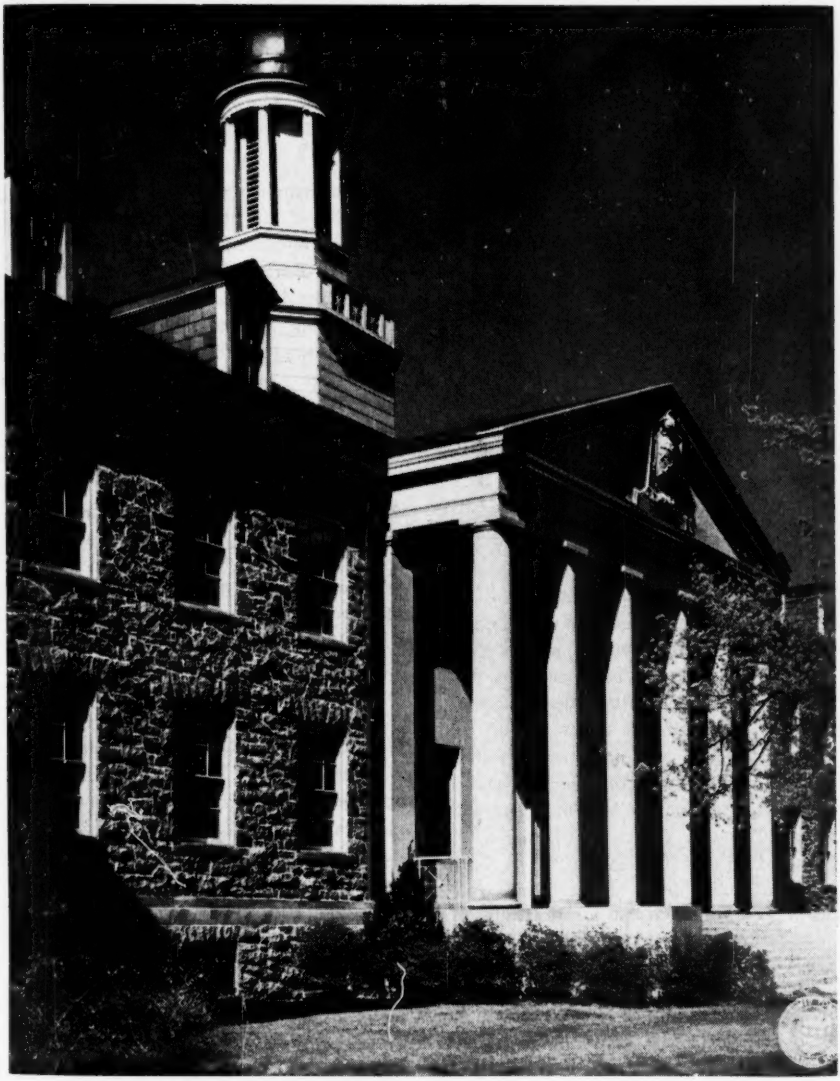
Upon the conclusion of each lecture, there is a question period. If time permits, the lecturer then visits committee rooms and conducts small, informal seminars. During both the question period and in the seminars, the students are encouraged to ask any question they wish; to probe into the depth of the issue.

Major General Joseph M. Swing, Commandant, Army War College

It is not obligatory for the students to agree with the speaker. Individual thinking and a thorough search for the desired knowledge is the essence of these discussions. Great value is obtained from this procedure as the guest speaker is informed, prior to his lecture, that he, too, may think and speak without reservation because everything said in the halls of the Army War College is restricted. Nothing said is ever released without the express permission of the speaker.

When all committees have finished their solutions and the preparation of the required reports, on a predetermined scheduled date, the faculty advisors go over the reports and select one or more on each subject for formal presentation before the entire class. Each of these presentations is followed by comments from the chairmen of committees whose reports were not selected. Following this, there is a question period in which the entire class participates. Questions may be asked of any of the chairmen whose committees have worked upon the problem under discussion. In many instances, a question asked of a chairman may be delegated by him to a member of his committee for answer. In this manner, the greatest amount of student participation is obtained. In addition, each student becomes familiar with all assigned problems.

An essential part of the committee



New and Permanent Home of the Army War College
Carlisle Barracks, Pennsylvania

system is the student's approach to the problem. What to do about it and how to solve it is up to the student committee. The problem directive issued to the students is a guide and is not all-inclusive. Student committees are expected to develop any additional points of consideration which they deem essential to a full research of the problem and to enlarge on the bibliography furnished by the faculty. At no time does the faculty attempt to guide or to "slant" a solution in a given direction. The final report must be the product of research, evaluation, discussion, and committee agreement.

There are times, however, when committees cannot agree. When there are one or more dissenters within a committee, a minority report is mandatory. In the formal presentation period, this minority report also is given full consideration by the class.

Solutions

Unlike most of the service schools, there are no approved solutions at the Army War College. This may seem a little strange at first. After due thought, it must be realized that there are no solutions, approved or disapproved, to the complex problems with which high-level planners and commanders are confronted daily. The end result, and the one emphasized at the College, is a series of practical, feasible, realistic ideas which, taken as a whole, attain a given objective.

Examinations

The fact that there are no formal examinations given at the College is further testimony to its extremely high standards. Further, examination of the students is deemed unnecessary, for the officers attending the course are all carefully screened prior to selection. They would not have been assigned to the class, if they were not of the highest caliber. In postgraduate work, it has been found that student enthusiasm does not have to be generated. The desire for knowledge already has been established.

Unification

In conformance with the Army's unalterable belief in the unification of the services, members of the Navy, Marines, and Air Force are in the student body. It is hoped that, eventually, the State Department also will be represented. In a like manner, officers of the Navy and Air Force are presently assigned to the faculty. An invitation, likewise, has been extended to the State Department to provide a resident member for the faculty. This vacancy on the faculty probably will be filled, beginning with the 1951-52 course.

Conclusion

When the first post-World War II class of the Army War College graduates in June 1951, each student will have solved 14 complex problems, in committee work, on subjects pertaining to The Army and National Security, Current Army Problems, and War Planning. In addition, he will have written a thesis on a subject of current military importance. He will have spent a week in Washington, D. C., where he was briefed on the problems of the Army, as well as the Navy, the Air Force, and the State Department. If conditions permit, he will have traveled throughout one of the overseas theaters of operations where, for a period of 2 weeks, he learned, at first hand, the complexities that are facing the field commanders and their staffs daily. All this, it seems, not only fulfills but exceeds the expectations of Elihu Root.

But there is more. The graduate of the

Army War College will have lived and worked, for 10 months, in close relationship with approximately one hundred of his brother officers. This, in itself, will prove of inestimable value in the future, not only to the individuals concerned, but to the Army at large. Here will have been fostered a brotherhood of professional men of arms whose only desire is to serve their Country for peaceful purposes. Should war come, however, they will have been trained to lead the Nation to victory in futherance of the vision of Elihu Root.

Our splendid Army School system employs the latest developments from the field of civilian education to fulfill our tremendous requirements for leaders, technicians, and instructors. By the introduction of training in such subjects as radiological defense and the military applications of atomic energy, we have directed our training programs toward the problems that a future war may present.

General J. Lawton Collins

The progress that we have made in overcoming the impotence that resulted from hasty demobilization after World War II has been brought about largely by intensified training. By utilizing to the fullest the small nucleus of experienced personnel that remained in the postwar Army, we have achieved a high standard of military proficiency and knowledge.

General J. Lawton Collins

In Forty or Eight to Rosecrans

The First Wartime Use of Railroads for Strategic Purposes

Lieutenant Colonel Karl F. Eklund, *Corps of Engineers*
Instructor, Command and General Staff College

TODAY, the rail movement of thousands of persons over and above normal rail traffic is a mere incident in a day's business for our railroads. In the past, it wasn't always considered such a routine matter. By the same token, large and suddenly requested troop movements by rail offer no problem for our railroads today; but, again, it wasn't always such an easy problem to solve.

Strategic Use of Railroads Suggested

The first complete and detailed suggestion for the use of railways as a strategic instrument of war was advanced, in 1838, by Major General Edmund Gaines, USA. He proposed the construction of seven strategic railways radiating from the then "central states" of Tennessee and Kentucky to the several frontiers of the country. His plan was never approved. The first actual use of railways to transport troops during time of war occurred in 1846, when a regiment of Pennsylvania Volunteers moved by rail to New Orleans prior to embarking for Mexico.

Military Railway Service Authorized

Although military considerations entered largely into the idea of trading land for railway service, and although the first land grants were made to railways in 1850, at the beginning of the Civil War, the military use of railroads was strictly in an experimental stage. Their use in campaigns was not understood, and field commanders, at first, refused to engage in operations any great distance from supply bases if they had to depend on railroads for the resupply of their forces. Military necessity, probably dictated, in large measure, by the inadequacy and wet-weather impassability of roads, soon tended to overcome this attitude. This led to congressional authority, on 31 January 1862, for the President ". . . to take possession of any or all . . . railroad lines in the United States, their rolling stock . . . and all appurtenances. To place under military control all the . . . employees . . . so that they shall be considered as . . . part of the military establishment of the United States, subject to . . . the rules and articles of war." This was drastic action, as it was the first authorization for the conscription of personnel and property in the United States.

Under this congressional authority, D. C. McCallum, a former general superintendent of the Erie Railroad, was appointed head of the Military Railway Service (MRS) by the following order:

> War Department
> Washington, D. C.
> February 11, 1862
>
> Ordered that D. C. McCallum be, and he is hereby, appointed military director and superintendent of railroads in the United States, with authority to enter upon, take possession of, hold, and use all railroads, engines, cars, locomotives, equipments, appendages, and appurtenances that may be required for the transport of troops, arms, ammunition, and military supplies of the United States, and to do and perform all acts and things that may be neces-

sary and proper to be done for the safe and speedy transport aforesaid.

By order of the President,
Commander in Chief of the
Army and Navy of the
United States:
EDWIN M. STANTON
Secretary of War

McCallum was commissioned as a colonel (later promoted to a brevet major general) and was separately instructed by the Secretary of War:

I shall expect you to have on hand at all times the necessary men and materials to enable you to comply promptly with any order given, nor must there be any failure.

Thus was established the first Military Railway Service, under an officer of considerable railway experience.

Construction Corps Formed

The necessity for the construction, reconstruction, and rehabilitation of rail lines soon became apparent and, in April 1862, Mr. Herman Haupt, a well-known railway, bridge, and tunnel engineer, was summoned to take up these tasks. The "Construction Corps," organized in May 1862 and headed by Haupt, first as a civilian, then as a colonel and brigadier general, performed extraordinary service in keeping McCallum's railroads in operation. His methods were unique and revolutionary, and so extraordinarily successful that he was invited, after the Civil War, to speak in London to the Royal Engineers on his methods of bridge and railway construction.

Haupt's forces became expert at constructing bridges rapidly; so expert, in fact, that it was said they could build a bridge "about as fast as a dog could trot." After the Massaponix bridge near Fredericksburg, Virginia, was burned by Lee's forces and replaced by Haupt in a half day, it is recorded that civilian onlookers said, "The Yankees can build bridges quicker than the enemy can burn them down." The story of the Construction Corps and its exploits and innovations makes valuable reading today. The fact that the need for its existence was recognized, and that, once organized, it operated successfully, is an excellent commentary on progressive military thinking.

MRS Made "Intersectional"

The exploits of the Construction Corps were largely responsible for the increased recognition of the ability of railroads to support troops in the field. This led to ever-increasing attempts on the part of field commanders to seize control of the railroads operating in their support. All of these attempts at railway operation by field commanders "proved signal failures, disorganizing in tendency and destructive of all discipline." The immediate result was a stringent War Department Order, as follows:

The basic doctrine and concepts of the MRS have not changed since its inception in 1862. The principal differences in the Service as it is known today are in its size and in its improved operating techniques

War Department
Adjutant General's Office
Washington, D.C.
November 10, 1862

Special Orders
No. 337

* * * * *

16. Commanding officers of troops along the US Military railroads will give all facilities to the officers of the roads and quartermasters for unloading cars so as to prevent any delay. On arrival at depots, whether in the day or night, the cars will be instantly unloaded, and working parties will always be in readiness for that duty and sufficient to unload the whole train at once.

Commanding officers will be charged with guarding the track, . . . within their several commands, and will be held responsible for the result.

Any military officer who shall neglect his duty in this respect will be reported by the quartermasters and officers of the railroad and his name will be stricken from the rolls of the Army.

* * * * *

No officer, whatever may be his rank, will interfere with the running of the cars as directed by the superintendent of the road.

Anyone who so interferes will be dismissed from the service for disobedience of orders.

By order of the Secretary of War:
E. D. TOWNSEND
Assistant Adjutant General

Jackson Seizes Locomotives

The Confederate forces, too, were placing great reliance on railroads to support their forces, but were handicapped by a lack of motive power and rolling stock. A little-known incident indulged in by the great "Stonewall" Jackson, in 1861-62, illustrates his indomitable spirit and the part he played in reducing that shortage. In May 1861, Jackson seized four light Federal locomotives at Harpers Ferry, Virginia, and ran them over the poorly built branch line to Winchester, Virginia. From Winchester to Strasburg, Virginia, they were hauled over the Valley Turnpike [a road, not a railroad] a distance of 20 miles, and then by rail via Manassas Gap to Richmond, and Confederate use.

In June 1861, when Jackson evacuated Harpers Ferry, he fell back on Martinsburg, Virginia, a large railroad center for the Baltimore and Ohio Railroad. There, he was ordered to destroy all the railroad property at Martinsburg. This he proceeded to do, destroying some 42 locomotives, 305 cars, and all railway facilities; but, heartened by his successful exploit of the preceding month, he evacuated 14 locomotives, a "goodly number of freight cars," a large quantity of valuable machinery, and the turntable from the roundhouse. All of these were carried over the road [not railroad] to Strasburg, a distance of 38 miles. That must have presented quite a picture: 50-ton locomotives being hauled over dirt roads in the hill country of Virginia by multiple teams of horses, "loaned" by the neighboring farmers. The last of these engines to be evacuated by road to Strasburg could not be sent to Richmond via the Manassas Gap Railway, as the Gap had been closed by Federal action. The indomitable Jackson put this last engine on the rails at Strasburg and sent it south, 25 miles to Mt. Jackson, and thence, over the Valley Turnpike, another 50 road miles to Staunton, Virginia, before it could be put back on the rails. Such was the importance the South placed on adequate motive power.

On another occasion, Southern troops raided the Baltimore and Ohio Railroad and took up 5 miles of track—rails, spikes, ties, everything—and relaid it 50 miles away to their own advantage. The next day, the Northern army recaptured the track.

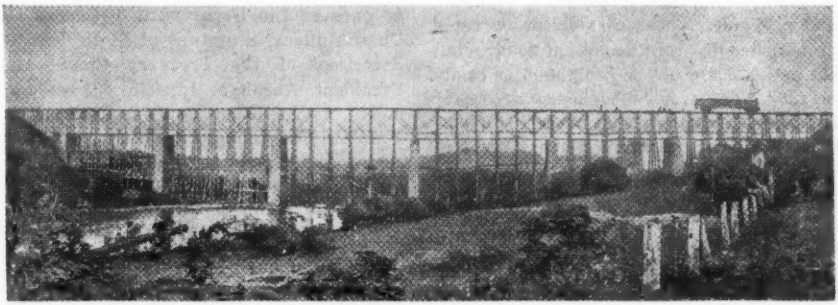
These incidents all point out the ever-increasing importance of rail lines and the increased reliance placed on them for military purposes, by both the North and the South. But an even greater reliance on them was to become necessary.

Trouble Ahead

The real test of the strategic value of railroads came, in 1863, when it became evident that General Rosecrans' Army of the Cumberland, just south of Chattanooga, was the intended objective of a Confederate concentration of ". . . all . . . available forces from every direction." Orders accordingly went out to General Grant (in Mississippi) to move troops to the vicinity of Decatur, Alabama, to protect Rosecrans' right flank, and to General Burnside (in Knoxville) to take up positions to protect Rosecrans' left. In addition, area commanders in Cincinnati, St. Louis, and as far away as Milwaukee, were directed to ship forward to Grant, Rosecrans, and Burnside, as appropriate, a maximum of new units and filler person-

nel. Many minor rail shipments were involved in these movements.

On 20 September, prior to the expected assistance from Grant and Burnside, the Secretary of War received a most disheartening dispatch from his Assistant Secretary (Dana), then with Rosecrans. It told of the "wholesale panic" of the defeat of Chickamauga. Later dispatches



Railroad bridge across the Chattahoochee River, Georgia, 780 feet long and 90 feet high, built in 4½ days by the Construction Corps, organized by Colonel Herman Haupt.

of the 20th and 21st tempered the original dispatch but still called it a "disaster," and gave the important information that General Bragg, opposing Rosecrans, was being reinforced by yet another corps, and that the "Confederacy seems concentrated here." By 22 September, the Washington state of mind was typified by the following dispatch:

War Department
Sept 22, 1863
8.30 AM

Major General Rosecrans
Chattanooga, Tenn

. . . Please relieve my anxiety as to the position and condition of your army up to the latest moment.

A. LINCOLN

Trouble At Hand

A Rosecrans dispatch, almost simultaneous with the Lincoln query, spoke in terms of a ". . . sanguinary battle against vastly superior numbers . . . we have suffered terribly . . . disaster . . ." In direct reply to the Lincoln query, Rosecrans stated ". . . we are . . . brave and determined; but our fate is in the hands of God. . . ." This reply was followed, on 22 September, by dispatches from Dana stating that ". . . this army looks anxiously for reinforcements;" and that "Rosecrans is considering . . . retreat. . . ." Later on the same day, Dana indicated that "Rosecrans . . . determined to fight it out here. . . ." Then, on 23 September, a Dana dispatch, in a more objective vein, arrived in Washington:

Chattanooga
Sept 23 — 11.30 AM

Hon. E. M. Stanton
Secretary of War

The net result of the campaign thus far is that we hold Chattanooga and the line of the Tennessee River. It is true this result has been attended by a great battle with heavy losses, but it is certain that the enemy has suffered quite as severely as we have.

The first great object of the campaign, the possession of Chattanooga and the Tennessee line, still remains in our hands, and can be held by this army for from fifteen to twenty days against all efforts of the enemy, unless he should receive reinforcements of overwhelming strength. But to render our hold here perfectly safe, no time should be lost in pushing 20,000 to 25,000 efficient troops to Bridgeport [in Alabama, southwest of Chattanooga]. If such reinforcements can be got here in season, everything is safe, and this place—indispensable alike to the defense of Tennessee and as a base of future operations in Georgia—will remain ours.

C. A. Dana

The Situation Must Be Met

Santon's answer, upon receipt of Dana's dispatch, showed the Secretary's inten-

tions as he thought out his next move. He wrote, in part: "Every nerve is being strained to strengthen General Rosecrans and his gallant army. . . ."

Two considerations must have dominated the thinking of the Secretary of War: that the immediate reinforcement of Rosecrans was essential; and that the only remaining source of reinforcements was the Army of the Potomac, in Virginia, under Meade. These considerations could be satisfied by routine action today; but the action could not be completed as easily in 1863. The troop movements necessary would be of a magnitude never before attempted. The rail movement involved would be epoch-making in military annals; actually moving twice as many men, twice as far, as had the Confederates in concentrating against Rosecrans. The difficulties would be great. The most direct route could not be used as it traversed Confederate-held territory. The available alternative totaled 1,100 miles, making it necessary for troops to pass through Washington; Relay House (near Baltimore); Benwood, West Virginia (near Wheeling); Columbus, Ohio; Indianapolis; Louisville; Nashville; and, finally, to some point designated by Rosecrans, where they would join his forces.

At least seven railroads would be involved in this troop movement. Their capacities were unknown, their gauges varied, and only few of them actually interconnected or had adjacent tracks at a common point. The Ohio River would have to be crossed twice, and no bridges existed; rolling stock would have to be assembled.

These were just some of the problems. There would be others, too. First estimates of the time necessary for the movement ran as high as 40 to 60 days—entirely inconsonant with the 15 to 20 day requirement indicated by Dana. Clearly it was to be an undertaking of the first magnitude, but it had to be done, and done at once.

The Situation Will Be Met

Stanton's first step, taken at once and in complete disregard of the hour [nearly midnight on 23 September], was to secure approval of his proposal. For this purpose, he summoned to the War Department ("the Secretary of War wants to see you at once at the Department") General in Chief Halleck, Secretary of State Seward, Secretary of the Treasury Chase, and President Abraham Lincoln. There was much conversation and no immediate unanimity of thought. Lincoln and Halleck were not convinced of the feasibility of the plan; Seward and Chase sided with Stanton.

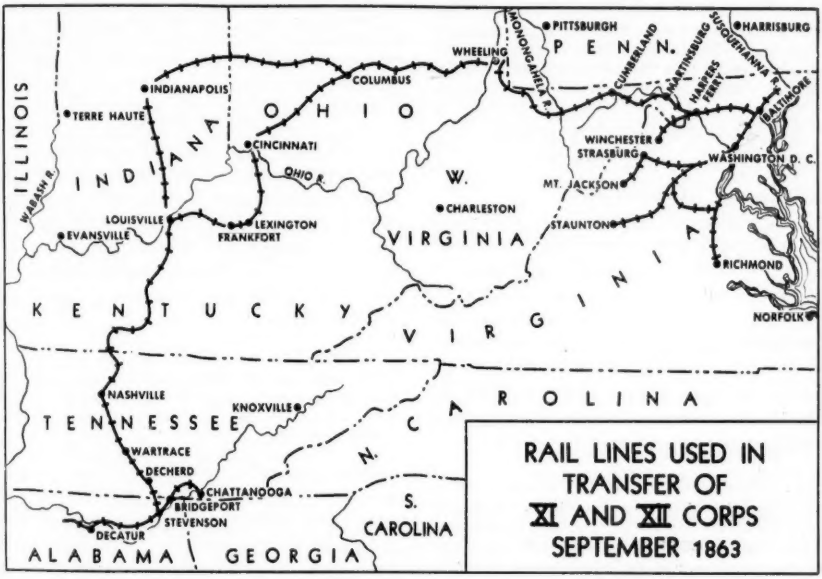
McCallum, who had been sent for after discussion started, estimated 7 days for the movement, if he were given supreme authority and abundant transportation.

By 0230 of the 24th, the decision was made in favor of Stanton's proposal, and Meade was given telegraphic warning orders to "prepare the XI and XII Corps to be sent to Washington, as soon as cars can be sent . . . probably . . . by the morning of the 25th." At the same time, Rosecrans was informed that "14,000 or 15,000 men from here (Washington) will be in Nashville in about 7 days." Considering that an undertaking of unprecedented magnitude would have to be accomplished to make good on that promise, and that no detailed plans had then been made, it took courage to so inform Rosecrans.

About 1 hour and 10 minutes after the warning order had been sent to Meade, a reply was received that "The XII Corps is . . . on picket, and could not well be withdrawn and got ready in the time you name." But it had to be done, and definite orders were issued to Meade: "Your telegram . . . has been shown to the President. He directs that the XI and XII Corps be immediately prepared to be sent to Washington." Fifteen minutes later,

a second telegram was sent to Meade, reading: "It is intended by . . . last dispatch that the XI and XII Corps are positively to be sent here with the least possible delay. Every effort must be made to have them ready tomorrow morning."

Meade reacted at once, and within 15 minutes of the receipt of definite orders had placed both corps under written orders.



Things were beginning to move. The greatest military use of railways in history was about to begin.

Information Needed

Just prior to the midnight conference at the Department, Stanton sent a number of telegrams for information and assistance. One of these, which follows, gives a clear indication of the extent to which this long-distance troop movement by rail was actually a pioneer step in railroading.

War Department
Sept 23, 1863
11.20 PM

Brigadier General Boyle
Louisville, Ky

Please ascertain and report to me immediately.

1. How many men can be transported by employing the whole rolling stock of the road from Louisville to Nashville, enumerating the number of cars of every description that could be employed?

2. How many hours it usually takes to make the trip from Nashville to Louisville, and at what rate of speed?

3. Is the road from Nashville to Chattanooga the same gauge as the road from Louisville to Nashville, so that cars can go direct from Louisville to Chattanooga, and what time does it take from Nashville to Chattanooga?

4. If the gauge of the roads is different, what is the supply of rolling stock on the Louisville [Nashville] and Chattanooga road?

EDWIN M. STANTON

The reply, likewise, is a clear indication of the condition of the railroads of that time, and their unreadiness for mass troop movements.

Louisville, Ky
Sept 24, 1863

Hon. E. M. Stanton

1. The Louisville and Nashville Railroad can trans-

port 3,000 men daily, using whole stock for the purpose. The company have 30 passenger cars, 200 box and rack cars, 125 flat cars; besides these, Adams Express has 20 cars.

2. Passenger trains occupy twelve hours between Louisville and Nashville; for trains with troops, about sixteen hours. Distance from Louisville to Nashville, 185 miles. [1950 train schedules show 3 hours 30 minutes.]

3. The road south from Nashville to Chattanooga is same gauge with Louisville and Nashville Railroad, and roads connect, and cars can go direct from Louisville to Nashville at rate of from 12 to 15 miles per hour. The time from Nashville to Chattanooga, I cannot ascertain accurately.

* * * * *

J. T. BOYLE
Brig Gen

Organization

In order to ensure against failure of the movement because of a lack of organization, Colonel McCallum was placed in charge of all operations, and Colonel T. A. Scott, an experienced railroader, was appointed as a roving field movements control officer with full authority. Also, Major General Joseph Hooker was assigned to command both corps being transferred, and was:

. . . authorized to take military possession of all railroads, with their cars, locomotives, plants, and equipments, that may be necessary for the execution of the military operations committed to his charge; and all officers, agents, and employees of said roads are directed to render their aid and assistance therein, and to respect and obey his commands, pursuant to the act of Congress in such a case made and provided.

Hooker's authority, clear and firm, was not used, as the co-operation provided by all railroads was excellent.

On the 24th, Rosecrans was queried about the relative priority of artillery in the shipment, and replied: "Please send the infantry by brigades as fast as possible. Let the artillery follow at leisure. The great point is to have troops at Stevenson and Bridgeport." He was to regret that reply, as regards the priority indicated for the artillery.

Organizational forethought touched on other matters, too. A telegram to Brigadier General Kelley at Clarksburg, West Virginia, stated in part:

Detachments of troops will be sent west over the Baltimore and Ohio Railroad. Take all possible precautions to protect the road from rebel raids.

* * * * *

The troops will cross the river at Bellaire. It would be well to have a guard at the crossing, and also to close all drinking saloons at the principal stations.

Getting Started

The 24th and 25th were busy days; there were many matters to settle and much work to do. But it was successful work, for at 1700 on 25 September, the first two trains left Washington with elements of the XI Corps. Then, at 1800, the president of the Baltimore and Ohio Railroad reported:

Our men have been constantly engaged day and night since your decision was made in preparing and forwarding the cars, and have already placed more than one-half the number required for the entire movement.

That was good news. If all progressed as well, a steady stream of trains to the west was certain, and the operation was an assured success. The news continued good, too, for by 1100 the next morning (26th), the first 12 trains of that steady stream had passed Relay House, and the movement was well under way. The destination of the troops was definite now, as Rosecrans advised Hooker on the 27th to proceed direct to Bridgeport, and that transportation would be furnished him there.

The Difficulties Overcome

The route to be traversed was full of what would now be termed unnecessary operational difficulties. Four changes of cars were required. The first occurred at Washington, where a change was made, in Maryland Avenue, from military cars required for the support of Meade, to

Baltimore and Ohio passenger cars and box cars with seats. The two railroads had been previously interconnected, in Washington, by tracks laid in Maryland Avenue between the Potomac River bridge and what is the present Union Station.

The second change of cars was made in crossing the Ohio River near Wheeling. Troops wtih their equipment were unloaded, marched across a ponton bridge, and then reloaded. A third change was required at Indianapolis, where a mile hike across town was necessary until additional tracks were laid, after which the transfer was expedited through the use of these side-by-side tracks, the gauges of the two railroads being at variance. At Louisville, a second crossing of the Ohio, by coal-barge ponton bridge constructed for the occasion, necessitated a fourth change of cars. The movement was then completed on tracks of 5-foot gauge.

In spite of these difficulties, the movement went well. Commissary personnel, who boarded the trains to feed the troops, were returned to their station by other means to repeat their time-saving performance over and over. By noon of 28 September, the last troop train was underway; and the first reached Indianapolis shortly thereafter. More than 20,000 men and 10 batteries were underway (35 percent beyond the requisition), and it was but the fourth day after the warning order to General Meade. At this time, the master of transportation of the Baltimore and Ohio Railroad reported: "I know no reason why I should hesitate to assure you that complete success continues to attend the expedition."

On the evening of 30 September, the head of the column arrived at Bridgeport, Alabama, its destination, just 7 days after the warning order was sent to Meade. The entire XI Corps closed on the next day and, on 2 October, the XII Corps was passing through Nashville, less than a hundred miles away.

A Lesson is Learned

In the meanwhile, the following messages between Generals Rosecrans and Hooker were exchanged:

Hq. Dept of Cumberland
Chattanooga, Oct 3, 1863, 1.30

Major General Hooker
Stevenson, Ala

You were advised of a heavy cavalry raid on our railroad. Order promptly all the XII Corps to stop on the railroad—say one division at Wartrace, and if possible, one at Decherd. . . . see well to the safety of our depots at Stevenson and Bridgeport and if you can spare a division to Therman and supply it, do so . . . our weak points are the railroads and our left flank. . . .

W. S. ROSECRANS
Major General

Stevenson, Ala
Oct 3, 1863 — 4.45 PM

Brig Gen Garfield
[COFS to Rosecrans]
Chattanooga

Dispatch of 1.30 just received. I had not been advised of an intended raid. The dispositions desired will be made as speedily as it can be done. . . . It will be impossible to put a division at Therman and supply it until we get transportation. Have none yet. Please send maps.

JOSEPH HOOKER
Maj Gen, Commanding

Hq. Dept of the Cumberland
Chattanooga, Oct 4, 1863

Major General Hooker
Stevenson, Ala

. . . The general commanding directs you to take the necessary steps to protect the railroad, and at the same time push forward the preparations for crossing the river as soon as the situation will warrant. . . . I have just sent you a set of maps. I hope soon to supply your officers.

J. A. GARFIELD
Brigadier General
and Chief of Staff

Thus, on the tenth day after the warning order to Meade, the XI and XII Corps, more than 20,000 men, were busy executing their orders at their destination after a rail movement which not only made military and railway history, but also established clearly the strategic value of railroads. It is no wonder that the Germans sometimes refer to the Civil War as the "Railroad War."

Rosecrans now experienced the effect of requesting that the tactical integrity of his two new corps be destroyed.

Hq. XI and XII Corps
Stevenson, Ala
October 4, 1863

Bridgadier General Garfield
Chief of Staff, Army of
the Cumberland
GENERAL:

. . . The horses for my artillery have not yet arrived. The batteries at Bridgeport are without power to move until the arrival of the animals. . . .

JOSEPH HOOKER
Major General, Commanding

Despite this error in judgement, the movement was a success, for Hooker later reported to the Secretary of War: "If you projected the late movement of the XI and XII Corps you may justly claim the merit of having saved Chattanooga for us. . . ."

Then followed two important messages:

Indianapolis, Ind
Oct 6, 1863

Hon. E. M. Stanton

The last of the movement of XI and XII Corps, consisting of horses and baggage, left this point at 9.30 this pm. . . .

L. M. COLE
Captain and
Aide-de-Camp

Chief Quartermaster's Office
Washington, Oct 9, 1863

Col Henry C. Hodges
Chief QM, Army of the Cumberland
Nashville, Tenn

I am directed by the Quartermaster General to inform you by telegraph that all the transportation for the XI and XII Corps has gone forward. The transportation of the XI Corps consists of 261 six-mule teams, 75 two-horse ambulances, and 3 spring wagons. The transportation of the XII Corps consists of 150 four-horse teams, 156 six-mule teams, and 75 two-horse ambulances; all with horses, harness, wagon-masters, assistant wagon-masters, and drivers; all in good order. The first shipment was made Sunday evening, October 4th. The last shipment was made Wednesday evening, October 7.

D. H. RUCKER
Brigadier General,
and Quartermaster

Changing the Gauge

Thus ended the actual movement, but Colonel Scott, the field movements control officer for the moment, was still busy. In his report to Stanton, on 27 September, he had recommended:

. . . changing the gauge on the Louisville and Lexington road. It can be done in 10 days time, and will, for all future military operations, enable you to concentrate all the equipment of the road in Kentucky.

This recommendation was received in the War Department at 2145 on 27 September, and, at 2200 on 27 September, an authorizing telegram was dispatched to Colonel Scott. On 4 October, Colonel Scott was given the following blanket authority to effect the necessary changes:

You are authorized to make such arrangements for the change in the track and equipment of the Louisville and Lexington Railroad for military purposes as you may deem most advantageous to the Government and the military service, and for so doing this shall be your warrant.

After this change in gauge was made there would be far greater flexibility in the over-all rail system. The strategic value of railroads was now firmly fixed.

Generals are Passengers

One incident occurred during the movement which harkened back to Special Orders No. 337 dated 10 November 1862. A division commander tried repeatedly to delay the train ahead of the train he was on so that he could change trains, and so get to the head of his column. He was unsuccessful in his efforts, but was reported through channels all the way to the Secretary of War who took prompt action as follows:

War Department
Sept 27, 1863
9.40

Major General Schurz

Major General Hooker has the orders of this Department to relieve you from command and put under arrest any officer who undertakes to delay or interfere with the orders and regulations of the railroad officers in charge of the transportation of troops.

EDWIN M. STANTON
Secretary of War

Final Report

That settled the incident quickly, but it was not the last time Special Orders No. 337 was referred to in official communications. It was quoted in McCallum's final report, dated 26 May 1866, upon the military railroads of the United States under his charge during the War, where it was commented upon in these terms:

> Having had a somewhat extensive railroad experience both before and since the Rebellion, I consider this order of the Secretary of War to have been the very foundation of success. Without it the whole railroad system, which has proved an important element in conducting military movements, would have been not only a costly but ludicrous failure.

General McCallum's final report closes on this note of understanding:

> In conclusion, permit me to say that the Government was peculiarly fortunate in securing the services of civilian officers of great nerve, honesty, and capability to whom the whole country owes a debt of gratitude.

For, as the report states:

> . . . the fact should be understood that the management of railroads is just as much a distinct profession as is that of the art of war, and should be so regarded.

That statement has lost none of its impact in the nearly 100 years since it was written. McCallum and his "civilian officers" wrote a brilliant chapter in the history of military movements, and laid an excellent foundation for the further brilliant achievements of rail transport during World Wars I and II.

United States military railway units arrived in North Africa, some direct and some via the United Kingdom, within a few days after D-day. Other units followed shortly. In February the Manager, Military Railway Service, arrived in North Africa with an advance echelon of his headquarters, and very soon he was redesignated Director General. The 1st Military Railway Service, which was then set up in North Africa, continued with the victorious Allied forces into Sicily, Italy, and Southern France. In all these invasions small detachments of railway troops crossed the beaches with the assault troops to reconnoiter, begin railway operations where possible, and prepare plans for the disposition of the additional troops and the railway equipment which were to follow.

Report of the Chief of Transportation

The Bandits' Last Stand In Greece

Colonel Theodossios Papathanasiades, *Greek General Staff*

General Situation in January 1949

AFTER 3 years of guerrilla warfare, the military situation in Greece was far from satisfactory. The guerrillas, numbering about 23,000, with an excellent informer and intelligence network throughout the country, had the initiative. Practically no move could be made by units of the Greek Army which was not known in advance by the bandits. Unwillingness of the civilian population to give information to the Greek Army through fear of bandit reprisals further complicated the problem. As a result, guerrilla hit-and-run tactics, followed by dispersion in the rugged mountains when pursued, created a situation which imposed on the Army the need for adjusting its tactics to the most difficult type of warfare—guerrilla warfare. With the exception of the two strongly fortified areas of Vitsi and Grammos on the northern border, there was no front. Guerrilla bands occupied the areas shown on Sketch Map 1. They virtually dominated these and adjacent areas. From these mountain areas, raids were launched against towns and villages, for the purpose of looting, destroying, and abducting recruits for their forces. Kidnappings by the guerrillas for recruits had totaled 24,871 in 1948 (this figure dropped to 5,006 by the end of 1949 and, to date, in 1950, there have been none).

The guerrilla domination was so complete, that movement throughout the country was still limited to armed convoys 1 or 2 days a week in certain areas, and then only after the roads had been swept for mines. Sabotage of waterworks, industrial plants, roads, and railroads were practically daily occurrences.

As a result of guerrilla activities, more than 700,000 people had abandoned their farms and villages and moved to the larger cities, thus imposing on the Government a tremendous burden of sheltering and feeding.

Generally, lightly equipped and thoroughly familiar with the areas from which they operated, the guerrillas, when pursued, were able to outdistance the more heavily equipped National Army units. Along the northern border, guerrilla bands, when pursued too closely, simply crossed the border into the Communist-controlled countries which gave them protection and furnished them supplies for new incursions into Greece.

The guerrilla organization changed, in 1948, from small bands of 50 or 100 to a brigade and division organization. A guerrilla brigade numbered 600-800 men, with the division generally consisting of from two to three brigades. In addition to rifles, they were equipped with machine guns, mortars, and light artillery. Thus, approximately 23,000 bandits were able, with the support of the northern border countries, to terrorize a nation of 7,000,000 people—people who lived in constant fear, not knowing when and where the bandits would strike next.

The Greek Army ceased to exist when

the Germans occupied the country. It was reorganized in 1945-46, with practically no training and with very few trained leaders. In this condition, it was forced to start operations immediately against the guerrillas.

General Plans for 1949

As a result of the experiences gained and the lessons learned in 1948, plans had been developed for a major effort in 1949. The security of the towns and villages had been turned over to the National Defense Corps battalions—a force of 50,000 men. This left the Greek National Army of 147,000 free to carry out mobile operations. The general plan was as follows: while containing the guerrillas along the northern border with minimum forces; *first*, clear out the Peloponnesus; *second*, clear out Central Greece; *third*, reduce the strongly fortified areas of Vitsi and Grammos, adjacent to the Yugoslav and Albanian borders; and *fourth*, mop up the remnants of guerrilla bands throughout the country.

The first two operations were conducted generally as follows:

1. Before starting the operation, all known Communist sympathizers and suspected informers in the area were arrested and interned.

2. Advances were made on a broad front and in considerable depth.

3. The actions of mobile columns were vigorous and bold.

4. Troops pursued the enemy day and night.

As a result, the bandit intelligence network broke down completely. The guerrillas, constantly pursued, were unable to resupply themselves from their hidden mountain supply bases. No matter in which direction the guerrilla bands moved, they were met by units of the Army, and most of the bandit leaders were killed or captured.

With the loss of the leaders, bandit operations collapsed in the entire Peloponnesus in less than 2 months. Central Greece was similarly cleared out during the spring and early summer of 1949. The Greek Armed Forces were then ready, by late July 1949, to undertake Operation *Torch* to destroy the bandit fortified positions in the Vitsi and Grammos areas. The Operation was planned in two phases: first, to destroy the Vitsi position, which was also the headquarters of the bandit high command; and second, to capture the Grammos.

The Vitsi Operation

The Vitsi, a mountainous area of 375 square miles, is bounded on the north by Yugoslavia and on the west by Albania. It consists of two main mountain masses in the form of an inverted "V," with the Livadhopotamos River flowing southward to join the Aliakmon River and separate the two masses. One secondary road parallels the Aliakmon River from Kastoría to the north as far as the main road, which runs from Florina west into Albania. This latter road was the main bandit supply route from Albania to the Vitsi. With no problem of defense on the north and west, the area to the south and east was strongly fortified, with the bulk of the guerrilla forces, estimated at 7,500, dispersed in considerable depth in these two directions (see Sketch Map 2). All possible avenues of approach were mined and covered by machine-gun, mortar, and ar-

Unrelenting pressure day and night, rapid execution of plans, knowledge of the terrain occupied by the enemy, and destruction of his sources of information are indispensable when combating guerrillas

tillery fires. As discovered later, tremendous quantities of ammunition of all types had been moved into the area. An attack was expected by the guerrillas during the summer. The guerrilla radio, however, wanted to know where it would come first, the Vitsi or Grammos. Appearing to agree with the guerrilla radio that the Vitsi could not be penetrated, the Greek General Staff prepared a plan which was carried out several days prior to D-day. Air attacks, artillery bombardment, limited small-scale local ground attacks, and considerable movement of motor transportation in the rear areas were carried out in the Grammos area.

The task of reducing the fortified area of Vitsi was assigned to "B" Corps.

By 9 August, the 9th Division had concentrated in the Oinóï area, in southwest Vitsi, in preparation for Operation *Torch*. The 3d Commando Division and the 10th Division were concentrated in the area of Bikovik. The 2d and 11th Divisions were concentrated in the Florina area. The bulk of the artillery of the Army was in support of these Divisions.

As a preliminary to the main offensive of Operation *Torch*, the 22d Brigade of the 2d Division and a separate regiment armed only with light weapons were grouped as a task force. Early in the morning of 10 August, this task force launched attacks south of Florina to capture the Polenata and Plati Ridges in the Vitsi east flank gap, which the bandits had kept open and used as an escape route. These Ridges would also provide better positions for later attacks. The 12th Light Infantry Regiment, moving from the east, quickly overcame guerrilla opposition and, by the afternoon of 10 August, occupied Hills 1386 and 1621, and Koula. These troops were forced to withdraw from Koula on the night of 10 August, due to intense guerrilla artillery fire. At 1000 on 10 August, the 22d Brigade of the task force launched attacks south from the Koulkouthouria hill mass. Using tanks, these troops, by the night of 10 August, captured the Polenata Ridge.

The weight of the bulk of the Corps now struck the center of the guerrilla defenses with a night attack which completely surprised the enemy.

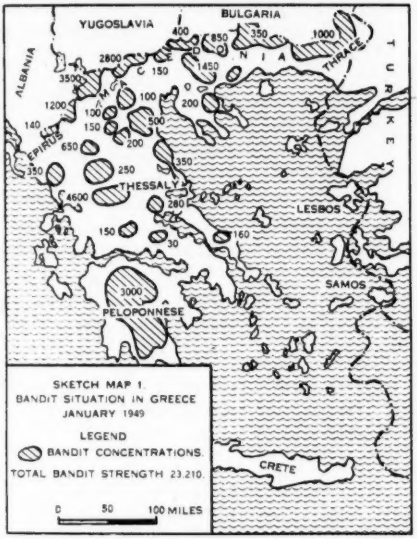
At 2200 on 10 August, the 3d Commando Division launched a night attack northward from Bikovik. Moving rapidly, the Commandos, by surprise action, captured Baro and Hill 1707. At the latter point, the Commandos, by the morning of 11 August, became engaged in a fight with guerrillas occupying positions around Lesits. Intelligence reported that the guerrilla Officers School Brigade and the 102d Brigade were defending this position, and were offering stubborn resistance. However, Lesits was taken by the Commandos by the morning of 12 August, the guerrillas withdrawing to the northwest. In conjunction with the pressure exerted by the Commandos from the south, the 11th Division, after a night attack, captured Tsouka by the morning of 11 August.

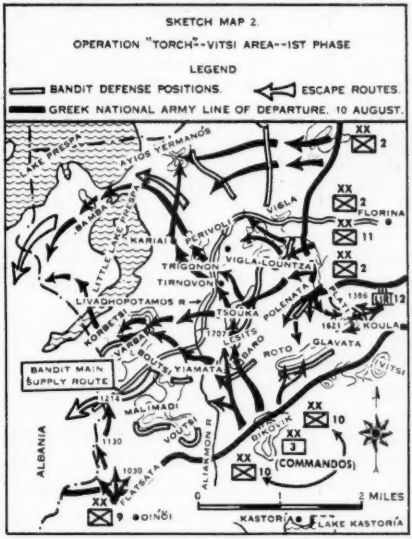
The 10th Division, preceded by the Commandos, launched its attack from Bikovik early on the morning of 11 August. Roto was captured promptly, but stubborn resistance was met from guerrillas occupying Yiamata, which held out until 12 August. With the creation of a gap of more than 6 miles in its main defenses, the guerrilla high command hastily ordered a withdrawal to better positions to the west.

Continuing the forward movement on 12 August on the heels of the guerrilla withdrawal, the 79th Brigade of the 3d Division and the 31st Brigade of the 11th Division moved from the Tsouka—Lesits ridge, and occupied Tirnovon and Trigonon on the same date. On the same day, the 10th Division and the 78th Commando Brigade advanced as far as the Livadhopotamos River.

Meanwhile, other elements of the 2d

Division, on the north flank, launched an attack the morning of 11 August and met stubborn resistance from the 10th Guerrilla Division. Similarly, the 9th Division, during the night of 11 August, attacked northward from the vicinity of Flatsata but made slow progress, advancing only





to Hill 1130 by early 12 August. Intense artillery fire from eight guns then struck the Division in the flank from across the Albanian border, followed by a counterattack from the same direction. The counterattack was repulsed, but the 9th Division was stopped. On 13 August, the Division advanced beyond Hill 1130 but was counterattacked again, and withdrew to Hill 1130.

By 13 August, the guerrilla withdrawal in the center was a rout, and the Greek National forces were moving rapidly in pursuit. The 78th Commando Brigade of the 3d Division and 37th Brigade of the 10th Division overcame resistance at Varba and, by 14 August, had captured Korbetsi. The 79th Commando Brigade and the 31st Brigade then swung north to-

wards Kariaí and Perivoli, capturing both by nightfall on 13 August. The guerrillas attempted to leave small delaying forces in all areas, while the bulk of their troops withdrew toward Albania.

Farther north, the 2d Division captured the Vigla-Lountza Ridge on 13 August. Other troops of this Division moved west along the Yugoslavian border and captured Ayios Yermanós by 14 August.

Meanwhile, the 18th Guerrilla Brigade in the southeastern portion of the Vitsi had been cut off in the area of Glavata by the advances of the 2d, 10th, and 11th Divisions. These guerrillas defended this area until 12 August, when the remains of their forces abandoned their positions and heavy equipment, and attempted to escape northward through the 11th Division. At 0300, 14 August, guerrilla resistance in front of the 11th Division collapsed, and a general withdrawal was started toward Little Lake Prespa. The 31st Brigade, in an effort to cut off this escape, moved north along the Lake from Kariaí and advanced to the Lake Prespa

causeway by 0830 on 14 August. Strong resistance was encountered at Bamba. The 79th Commando Brigade, meanwhile, continued its movement north and, by 14 August, reached Ayios Yermanós.

In southwest Vitsi, the 103d and 105th Guerrilla Brigades defended the Mali Madi—Boutsi—Voutsi area until the night of 13 August, when a general withdrawal was made toward Albania. The 9th Division, on the Albanian border, failed to advance rapidly enough to prevent these guerrillas from escaping. Meeting little or no resistance, the 9th Division, on 14 August, reached Hill 1214 across the old guerrilla supply road and, on this date, no further fighting was reported except in the area west of Little Lake Prespa.

The 31st Brigade, after fighting on 14 and 15 August, occupied Bamba at 1530. The Commandos crossed the Lake in assault boats on the night of 15 August, and, on 16 August, the entire area west of Little Lake Prespa to the Albanian border was occupied by our forces.

In their hasty and disorderly withdrawal from the Vitsi area, the guerrillas abandoned all of their heavy equipment and supplies. The following equipment was captured: 43 artillery pieces; 1 75-mm AT gun; 2 AA guns; 115 mortars; 232 German light machine guns; 68 British light machine guns; 96 heavy machine guns; 25 AA machine guns; 3,392 rifles; 142 bazookas; 1,650 mines; 49 cases of artillery shells; and 7,500 artillery shells. Intelligence reported that, of the six guerrilla brigades originally in the Vitsi area, the 103d, in the southwest part thereof, was the only unit to withdraw into Albania with most of its equipment and personnel. The 18th and 102d Guerrilla Brigades were practically wiped out. The 14th, 105th, and Officer School Brigades were reported as having lost 50 percent of their strength. Guerrilla casualties reported for this operation, from 10 August to 15 August, were 997 killed; 509 captured; and 133 surrendered. The Greek National Army casualties included 229 killed; 116 wounded; and 3 missing. In addition, the Greek National Army found the bodies of 20 Albanian soldiers and captured 7 others.

As a result of the rapid successes achieved in the Vitsi operation, and in accordance with the plans of Operation *Torch* for further operations to reduce the guerrilla positions in the Grammos area, the Greek General Staff ordered the following:

1. The 15th Division to be released to the control of "A" Corps on 13 August and moved to northern Grammos.

2. The 2d and 10th Divisions to continue the search of the Vitsi area, and to consolidate and occupy positions in that area.

3. The 9th Division to be placed under the control of "A" Corps on 15 August, and to move to its zone beginning 16 August.

4. The 3d Commando Division to be withdrawn from the Vitsi area to the Kastoría area, and there, to reorganize and become the Greek General Staff reserve. The Division was placed under control of "A" Corps on 16 August.

And so ended the battle of Vitsi. If there is any doubt as to whether or not the bandits were surprised, the following, which includes bandit self-criticism for failure in Vitsi, is reproduced in part.

20 August 1949

Decision of the Political Office of the Central Committee of the Greek Communist Party on the Battle of the Vitsi: ". . . We are fighting for the most righteous cause. We have the right political line. If we avoid, in the Grammos, the mistakes which were made in Vitsi or if we correct these mistakes, then we shall crush the enemy. If we rally all our fighters,

Grammos—the last guerrilla stronghold in Greece—was the scene of bitter fighting between the Greek National Army and guerrilla forces during the period 24-31 August 1949. Above, two views of the rugged terrain in the Grammos area. The deep cuts and rocky terrain restricted attacking forces to few routes of approach. Right, Greek National Army troops attacking Grammos Ridge on 28 August. Below left, a group of prisoners, including men, women, and children, captured by the Greek National Army during the Grammos campaign. Below right, a captured guerrilla pillbox about to be prepared for destruction by Greek National Army troops.

male and female, and our leaders, and neutralize all those who are discouraged, then we will be able to make the Grammos the grave of 'monarchofascism.'

"The enemy tactics in the Vitsi can be summed up in the following: *a. Surprise*: The use of surprise was successful because we made great mistakes. Tactics using surprise will be utilized again in the Grammos and that is why security measures must be strengthened. When our security is good, the enemy will not have surprise, and thus will lose the main factor in their current successes. *b. The utilization of mass artillery and air force*: The experiences in the Vitsi and the Grammos prove that when we have good and strong fortifications the mass of fire is of no use. Consequently, the ground must be intensively fortified. *c. Utilization of tanks in mass for the destruction of our pillboxes*: Here the enemy succeeded because the antitank defenses were not organized properly. The enemy in the Vitsi covered the tanks with infantry, that is, the infantry moved in front. By dispersing the infantry, we isolate the enemy tanks. The hunters can then destroy the enemy tanks. This was not done in the Vitsi. The experience of the recent battles proved that the enemy antitank guns (recoilless 75-mm) are placed in static positions to destroy our pillboxes. The finding of these guns and the destruction of the personnel that operate them is an important task. *d. The enemy operated along many directions in order to confuse our commanders and to conceal, each time, which was their main effort*: These enemy tactics require an extensive review by us so that we can find their weaknesses and determine where to concentrate our means. *e. The enemy puts great strength in the battle with the hope that, even if many are killed, some will be left to occupy to objectives:* Coolness is needed; together with a good fire plan, reserves, and plans for flank and rear attacks.

"These were the enemy's tactics in the Visti. In effect, we have a repetition of the tactics used last year in the Grammos. The enemy is gathering for another effort. In the Grammos, we have all the abilities to deliver a deadly blow against the enemy. We have enough means and strength; better and more advantageous terrain. In the Grammos, the fascists failed last year. In the Grammos, this year, we gave the enemy a strong blow with the maneuver held in April. In the Grammos, from 2 to 8 August, the enemy again lost prestige. We now have the experience of the Vitsi, together with the bleeding the enemy received in the Vitsi. Our main forces have crossed the Epirus and Central Greece. In spite of all their triumphant words, the 'monarchofascists' are now undergoing a strong economic, political, and military crisis. We can now destroy 'monarchofascism.'

"Male, female, and officer fighters must have faith in victory. With faith and fighting enthusiasm, we must face and crack the enemy. A hard punishment to those who think that, because we lost the Vitsi, we have lost victory. We have difficulties but we will bypass them. The Communists must lift high the flag of resistance. Those who are panicked must be refilled with enthusiasm, indomitable will, and steady faith to ensure the victory. If the Communists do their duty, all those around them will join as if one man; as if guided by a single thought; by one decision. Grammos will be the grave of fascism. Hail to our arms. Hail to our victory."

The Political Office

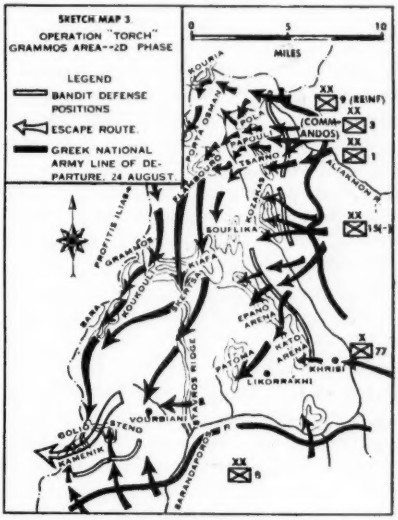
The Grammos Operation

Intelligence reports indicated that remnants of four guerrilla brigades (14th, 102d, 103d, and 105th) had entered the Grammos area, on 15 August, after they withdrew from the Vitsi area. The total combined strength of these brigades was

initially estimated at 1,000, with the remnants of the 102d and the 105th Brigades merged together as one battalion. The 103d Brigade had about 450 guerrillas. The 14th Brigade, of about 250 guerrillas, was moved south to the front of the 15th Division prior to the attack. The 12th Guerrilla Brigade, which was previously in the Grammos area, also moved south on 20 August to the front of the 15th Division. Consequently, on the eastern front of the Grammos, the guerrillas had the 12th, 14th, 16th, 102d, 103d, 105th, and 108th Guerrilla Brigades in defensive positions.

On the afternoon of 24 August, intense artillery fires were placed on guerrilla positions in eastern and northeastern Grammos. Eighteen *Helldivers* plus 12 *Spitfires*, the same afternoon, made heavy and repeated air attacks particularly against guerrilla positions on Tsarno Ridge. In accordance with the over-all plan for the operation, at 2100 on 24 August, "A" Corps launched a major offensive to eliminate an estimated 5,000 guerrillas occupying strong defensive positions in a 200 square mile sector of the Grammos mountain area, an area more rugged than the Vitsi. The plan called for the operation to be conducted in two phases. During the first phase, the 9th, 1st, and 15th Divisions plus the 3d Commando Division were to clear the northern Grammos. At the same time, the 8th Division and 77th Brigade were to exert pressure all along the remainder of the front. During the second phase, the 8th Division and the 77th Brigade were to close in on the Grammos in conjunction with the forces from the north and east. The 1st Division, initially, was to capture the Tsarno Ridge, from which the 3d Commando Division would attack through the 1st Division toward the Corps objective, the Grammos—Skertsa—Kiafa mountain mass to the southwest (see Sketch Map 3).

The 1st Division moved southwest across the Aliakmon River and, at dawn on 25 August, was advancing slowly towards the Tsarno Ridge. Stiff resistance was met and, initially, progress was slow. The 3d Commando Division moved to the rear of the 1st Division into the area occupied by the 51st Brigade, and both divisions, aided by superb artillery and air



support, captured the entire Tsarno Ridge by noon 26 August. The 79th Brigade of the 3d Commando Division the same day moved west across the River meeting stubborn resistance from the guerrillas. The 78th Commando Brigade, with elements of the 51st Brigade, attempted to take Flambouro, one of the strategic positions in the area. Other elements of 51st Brigade advanced on Skala where they met heavy resistance.

The guerrillas withdrew south from Flambouro and, by 27 August, the Commandos occupied it. Two counterattacks by the guerrillas against the Commandos

were repulsed. Meanwhile, the 52d Brigade, on the south flank of the 1st Division, attempted to take the Kozakas Ridge on 25-27 August but failed, due to stubborn guerrilla resistance and heavy counterattacks. The Kozakas Ridge was finally taken, on 28 August, when the guerrillas began a general withdrawal to the southwest. Similarly, the 51st Brigade occupied Skala on 28 August.

The guerrilla defenses in the whole northern area collapsed on the night of 27-28 August. The guerrillas withdrew hastily to the south leaving large quantities of equipment. Following up this withdrawal, the 78th and 79th Commando Brigades, moving through the 1st Division, reached Skertsa and Kiafa. One brigade continued south along the Stavros Ridge towards Voúrbiani and the other brigade moved west to join the 61st Brigade of the 15th Division.

The 9th Division captured its initial objective by dawn 25 August against practically no opposition, and continued a rapid encirclement of the enemy's left flank. On 26 August, its 41st Brigade, meeting little resistance in a surprise move, captured Kouria and reported that the guerrillas were apparently evacuating their positions. Then enemy flank was now wide open. Taking advantage of this, the Corps Commander immediately ordered the 61st Brigade of the 15th Division moved and attached to the 9th Division. Holding the 42d and 43d Brigades along the heights in the proximity of the Albanian border on the north, the 41st and 61st Brigades were pushed rapidly southwest along the border. Strong resistance was soon met in their attack on Porta Osman. It now appeared that the guerrillas would try to hold Porta Osman against the 9th Division, and Flambouro against the 1st and 3d Divisions. However, Porta Osman was captured by 1430, 27 August, following heavy artillery and air attacks. After its fall, it became apparent that all the guerrilla positions in the northern Grammos were untenable. A subsequent rapid guerrilla withdrawal to the south confirmed this belief. The 41st and 61st Brigades, moving rapidly southward along the border, captured the peak of Grammos on 28 August. The 61st Brigade then continued its movement south from Grammos in an effort to cut off the remaining guerrilla escape route into Albania, south of Bara. By 1600, Koukouli was occupied without resistance, but farther south, strong defensive action and the rugged terrain made progress difficult. Troops were later reported in contact with guerrilla forces in the vicinity of Golio.

The 15th Division, on the left flank of the 1st Division, had launched its attack westward the night of 24 August. It crossed the Sarandaporos River and advanced towards the Kozakas Ridge but made little progress. With the collapse of the guerrilla defenses in north Grammos and the guerrilla withdrawal to the south, the 15th Division reached and occupied Grammos Ridge on 28 August. The 73d Brigade, on 29 August, pushed troops farther south and made contact with elements of the 8th Division in the vicinity of Patoma and then moved west toward the border.

The operations of the 77th Brigade began the night of 24 August in the southeast Grammos gap in order to exert pressure on the guerrilla forces and close this escape route. On 25 August, the 77th Brigade captured Khrisí. It then attacked Kato Arena but no progress was made until late 27 August when the position was occupied.

The 8th Division, on the south, launched its attack northward on the night of 24 August with its main effort on the west flank along the Albanian border. Its first objective was Kamenik, but intense enemy fire from across the Albanian border prevented the Division from making any progress.

Simultaneously with the withdrawal of the guerrilla forces from north Grammos, the guerrillas in front of the 8th Division withdrew to the west. By 29 August, our forces had occupied all of the Grammos except the Golio—Steno—Profitis Ilias area, held by the 107th Guerrilla Brigade to facilitate guerrilla withdrawals into Albania. The positions were attacked heavily by the ground and air forces on 29 and 30 August and, late on 30 August, were captured. The Grammos area was now completely occupied.

Complete guerrilla casualties reported by the Greek General Staff for the Grammos phase of Operation *Torch* from 24 August to 31 August were as follows: 892 killed; 755 captured; and 109 surrendered. Greek National Army casualties included 245 killed; 1,451 wounded; and 16 missing.

The equipment captured by the Greek National Army included 14 artillery pieces (all sizes); 17 AA guns; 7 AT guns; 2 AA machine guns; 216 light machine guns; 322 German light machine guns; 66 automatic weapons; 2,704 rifles; 45 light mortars; 147 heavy mortars; 11 120-mm mortars; 10 *Piats*; 2 range finders; 2 mine detectors; and large quantities of artillery, mortar, and small arms ammunition and mines.

Strategic surprise was not possible in the Grammos. At this time, the Grammos was the only bandit stronghold left in Greece. Complete tactical surprise was achieved, however, as to the time and the direction of the main attack. The use of "soft-spot" tactics indicated that the enemy's left or northern flank, resting on the Albanian border, was extremely weak. Furthermore, the bandits did not expect the Grammos attack so soon. The guerrillas who escaped from the Vitsi area to the Grammos had not yet been fully reorganized when the attack was begun. The "A" Corps Commander kept his reserves close to the operation, and when the break-through occurred, there was no time lost in passing to the exploitation phase of the campaign. Once the rear of the enemy's position was reached, organized defensive areas quickly collapsed.

Conclusions

Of the nine principles of war, that of surprise probably played the most important role in these two operations. This was achieved by taking measures to deny information to the enemy, and to deceive him as to our dispositions, movements, and plans; by constant variations in the means and methods employed; by the speed and power of the execution of plans; and unhesitatingly using terrain which appeared to impose the greatest difficulties.

The rapid successes of the Greek National Army in the Vitsi and Grammos areas were due basically to vastly improved junior leadership and training. With increased efficiency came unbreakable morale.

Although the guerrillas used all of their well-known propaganda tricks, they failed to break the fighting spirit of the Greek soldier. His high morale and new fighting spirit reflected the glory of Ancient Greece, when over 2,400 years ago a Greek Army, outnumbered 6 to 1, defeated a mighty Persian horde on the Coastal Plain of Marathon.

RISE AND FALL OF AN ARMY

Major Hal D. Steward, *Armor*
Headquarters, 1st Cavalry Division (*Infantry*)

A STUDY and analysis of the rise and fall of the North Korean Peoples Army in the South Korean campaign, from June to October 1950, indicates many fatal miscalculations on the part of the Communists.

It is believed, by most American military experts, that the mobilization plans of the North Korean Army envisioned an organization with a basic strength of 15 divisions. The prewar 1st and 6th Divisions were well-equipped regular army units with a high percentage of veteran troops who had had actual battle experience with the Chinese Communist Forces.

The remainder of the 15 divisions, it is believed, were to be built around a nucleus provided by Border Constabulary Brigades and additional well-trained, experienced, Communist-indoctrinated North Koreans, returned from Chinese Communist military units.

A plan calling for a large-scale induction and training program was set into motion to recruit and train the additional troops required to provide the initial fillers for these divisions, and to keep all divisions up to strength with replacements.

This plan, which from a military standpoint seemed basically sound, had not progressed sufficiently beyond the planning stage to overcome subsequent unforeseen developments when the Reds invaded South Korea.

Several of the divisions in the 7 to 15 numerical sequence in the North Korean Army had been reported in various stages of development prior to the South Korean invasion, but actually the only battle-ready major units were the first six divisions. It seems evident that the North Korean Government was confident that these six well-trained, well-equipped divisions were in a favorable position to invade the Republic of Korea with lightning speed, and gain immediate decisive results.

But, even discounting initial decisive successes, the North Korean Army leaders apparently figured that the six divisions could maintain the offensive until other divisions could be made ready for combat. And so the first North Korean successes were consonant with this concept. Subsequently, these plans went astray.

UN Intervention

Many military men believe now that the North Korean Government either totally discounted the possibility of United Nations intervention, or felt that it would be so slow in developing, that the United Nations would be faced with a *fait accompli* and thus would be discouraged from acting. Events have, of course, proved this theory entirely false.

By 2 July, only one North Korean division, the 15th, in addition to the original six had been committed to combat action. It was about this time that United Nations intervention completely disrupted the original North Korean plans.

Immediately, it became essential that

the North Korean Army increase greatly its number of combat divisions to meet the unexpected increase in opposing forces. And it also became important to destroy the newly committed opposing forces, and to complete the conquest of South Korea, before adequate reinforcements could be landed in the south.

In an effort to meet these new requirements, the 7th and 8th Divisions were hastily organized and, by 15 July, had been committed rapidly to combat although they were inadequately trained and equipped, and understrength. By this time, manpower to be used as fillers for new units, for combat replacements, and for logistical support had become a serious problem to the North Koreans.

Quantity versus Quality

Because of pressure imposed by the tight time schedule, the Communists started to sacrifice quality for quantity in manpower. Although many large training areas had been established, they were used more as staging or assembly areas than anything else.

In North and occupied South Korea, the induction system was extensive and loosely applied, both as to age limitations and physical condition. The age bracket for induction was variously reported as 18-35, 16-37, and 17-45. However, it was not adhered to strictly. Everyone, physically able, was forced to "volunteer" either for the combat or service elements of the Korean Red Army. A large percentage of fillers for new units were South Koreans who were forced conscriptees.

In this way, the North Korean Army was able to maintain the initiative against numerically inferior opposing forces. By early September, the Red Army launched a powerful all-out attack against the United Nations perimeter with 13 infantry divisions, 3 security regiments, an armored division, and 2 separate armored regiments, aggregating a total of 133,000 troops.

The success of this North Korean drive was both considerable and unique considering the progressive disruption of the Red supply system and the interdiction of lines of communications by United Nations air and naval forces. The United Nations action resulted in shortages of supplies, particularly of ammunition and food; a dwindling in the number of well-trained soldiers; and an ever-growing percentage of forced conscriptees.

American military authorities explain that the successes achieved by the North Korean Army were due to the ruthlessness of the methods by which they were accomplished. Logistical problems were overcome, to some degree, by the mass employment of humans as draft animals to transport matériel to the front lines, and the ability of the North Korean soldier to live off the country. On the side of combat efficiency, the experience and fanatical indoctrination of the regular army nucleus of the units, the feeling among volunteers that they were on the winning side, and a long record of victories were strong factors in the Red Army's successes.

Affects of Forced Conscription

Counteracting these factors, however, were the North Korean's lack of supplies, and of sea and air power. In addition, a factor which contributed to their defeat was that a large percentage of forced South Korean troops had no inherent interest or enthusiasm for the North Korean

Learning nothing from history, the foundation for ultimate defeat of the North Korean Peoples Army is laid in its utter ruthlessness and its cruel and inhuman treatment of civilians and forced conscriptees

Once the UN offensive had broken through the North Korean defenses, Communist-inspired units became disorganized and lost their fighting efficiency. Above, North Korean snipers are marched to the rear by soldiers of the 1st Cavalry Division. Below, US soldiers examine captured weapons of the Communist-led North Korean Army.

cause, but an actual antipathy for it, fostered by the means which placed them forcibly in the North Korean Army.

Prisoner of war reports indicated that the actual training received by conscriptees varied from a rare 3 weeks to none at all. On an average, it seldom exceeded a week. Many conscriptees were sent into combat unarmed, with instructions to pick up weapons on the battlefield. In the attack, these draftees were forced into the leading elements by North Korean regulars who followed behind and shot them if they faltered or attempted to desert.

Under such circumstances, it is natural that a large number would desert at the first opportunity. However, there were strong deterrents to this line of action. If North Korean soldiers deserted or failed, they were executed. They were also told and many were convinced that if they surrendered, the United Nations forces would execute them. Such ruthless control enabled the Reds to obtain maximum results with untrained and unwilling manpower.

Coerced manpower turned out to be a two-edged weapon. While the North Korean Army was victorious in battle, the small group of loyal, fanatical Red soldiers was able to control the large number of forced conscriptees.

When, on the other hand, the strong United Nations offensive punctured the Red defenses, when Red units became disorganized and their means of transportation and communications had disappeared (if, indeed, they existed at all), it was no longer possible for the small nucleus of loyal Red soldiers to control the forced draftees. Under the relentless attack of United Nations forces, the effective fighting strength of the Red Army was depleted rapidly through large-scale desertions of conscripted soldiers.

By the end of September, only 15 days after the United Nations offensive had begun, it was believed that most North Korean units below the 38th Parallel had largely disintegrated. The Reds were no longer capable of presenting organized resistance.

Bad judgment, inhuman treatment, and utter ruthlessness led the North Korean Army to total destruction.

The attack on the Republic of Korea . . . was a clear challenge to the basic principles of the United Nations Charter and to the specific actions taken by the United Nations in Korea. If this challenge had not been met squarely, the effectiveness of the United Nations would have been all but ended and the hope of mankind that the United Nations would develop into an institution of world order would have been shattered.

President Harry S. Truman

PUT THE 'COMBAT' IN COMBAT RECONNAISSANCE

Lieutenant Colonel Thomas O. Rooney, *Armor*
Former Instructor, Command and General Staff College

The views expressed in this article are the author's and not necessarily those of the Department of the Army, the Army War College, or the Command and General Staff College.—The Editor.

"WHAT is a good mission for the reconnaissance unit in this situation?" Far too often the answer is: "To provide flank security for combat units," or "Reconnaissance prior to serious engagement with the enemy."

The first step taken by the military student in determining the mission or missions for the reconnaissance unit is to break up whatever reconnaissance unit is available, and parcel out its elements to all combat units present. Thus he provides a measure of flank security and reconnaissance for everyone. It is at this point that a military student's solution to the problem of the employment of a reconnaissance unit ends. Generally, this is a satisfactory solution, as a reconnaissance unit should perform reconnaissance missions. However, in addition to providing security on the flanks and in rear areas, under certain circumstances a reconnaissance unit can be employed in a combat role for "limited periods."

Unfortunately, this solution propounded by the military student fails to take into consideration the full capabilities of reconnaissance units. Too frequently, reconnaissance units are limited to reconnaissance and security missions and only at rare intervals, under exceptional circumstances, are they committed to combat roles for limited periods. The name "reconnaissance" unfortunately acts as a "stop light" when considering the employment of reconnaissance units. Forgotten, or unknown, is the fact that reconnaissance units are organized, equipped, and trained for combat missions. Lack of imagination on the part of the commander is the only factor preventing the extensive employment of reconnaissance units in combat roles.

The Basic Reconnaissance Unit

To understand the employment of a combat unit of any size, it is necessary to consider the basic combat elements of that unit. In any reconnaissance unit, the basic element is the platoon. All reconnaissance units are multiples of this basic platoon, which is the same wherever it appears. To illustrate, it takes the same form whether it is the reconnaissance platoon of a tank battalion; a platoon of the reconnaissance company in an infantry division; or a platoon of the reconnaissance battalion in an armored division or the armored cavalry regiment (light).

Each platoon has a platoon headquarters, a scout section, a tank section, a rifle squad, and a support squad, as indicated in Figure 1.

Although the platoon is a small unit, it is particularly well-balanced. It has

a rifle squad of 10 men manning 1 rocket launcher, 1 heavy machine gun, 1 Browning automatic rifle, 8 rifles, and 1 submachine gun. In addition, the weapons on the armored utility vehicle, one caliber .50 machine gun and one light machine gun, can be fired from the vehicle, or dismounted and fired from ground mounts by the section. All in all, the fire power of this section is considerable.

The tank section provides two light tanks for the platoon. Each tank is armed with a 76-mm gun, one caliber .50 machine gun, and two light machine guns.

The scout section comprising 12 men is highly mobile. Its armament and equipment include two light machine guns and four ¼-ton trucks. This section, in addition to reconnaissance activities, can be used readily as riflemen or to man the light machine guns.

The 81-mm mortar in the support squad does not replace the need for artillery. However, when it is considered together with the direct fire of the tanks, powerful support is provided for the rifles and machine guns of the rifle squad and scout section.

These four elements, in a sense, become a task force of riflemen, tanks, and scouts with their own organic fire support. The platoon is capable of establishing a base of fire with a separate maneuvering force to carry out effectively a combat mission within the limitations imposed by its size.

One characteristic of the reconnaissance platoon to be noted is the difficulty of breaking down the platoon into smaller, independent units. Its organization and equipment are such that two or more similar forces cannot be formed from the platoon. There is only one mortar. One tank by itself is particularly vulnerable without the covering fire of the second tank. There is only one rifle squad in one vehicle with only one heavy machine gun and one rocket launcher. The platoon, therefore, is the smallest balanced and effective team available within a reconnaissance unit.

The Reconnaissance Company

In general, the reconnaissance company, like the platoon, is identical wherever it appears. There are some minor variations, such as an additional officer for liaison purposes and additional mechanics in the reconnaissance company of the infantry division. However, the combat elements and basic equipment remain the same. Three reconnaissance platoons form a reconnaissance company; thus the company has three small, balanced units capable of co-ordinated or independent missions. The organization and principal armament of a reconnaissance company are shown in Figure 2.

The Reconnaissance Battalion of the Armored Division

The infantry division has one organic reconnaissance company. It is a divisional unit and under the direct command of the division commander. The armored division, since it is designed for exploitation, requires more reconnaissance strength, and consequently has organic to it a reconnaissance battalion. That battalion is composed of four reconnaissance companies, and a headquarters and headquarters and service company. The major combat equipment of this battalion includes 30 light tanks, 6 of which are command tanks; 12

A reconnaissance unit used habitually for flank security or reconnaissance missions is a waste of power. Its proper employment depends on an active imagination and an understanding of its capabilities

81-mm mortars; 36 3.5-inch rocket launchers; 12 heavy machine guns; and 30 light machine guns. To this total can be added the fire power of 17 caliber .50 machine guns on administrative vehicles, and another 28 caliber .50 machine guns and 28 light machine guns mounted on armored utility vehicles. With artillery support, this battalion becomes a potent force with a high degree of mobility and fire power, its 12 balanced platoons controlled easily by an effective communication system. The organization and weapons of the reconnaissance battalion in the armored division are also shown in Figure 2.

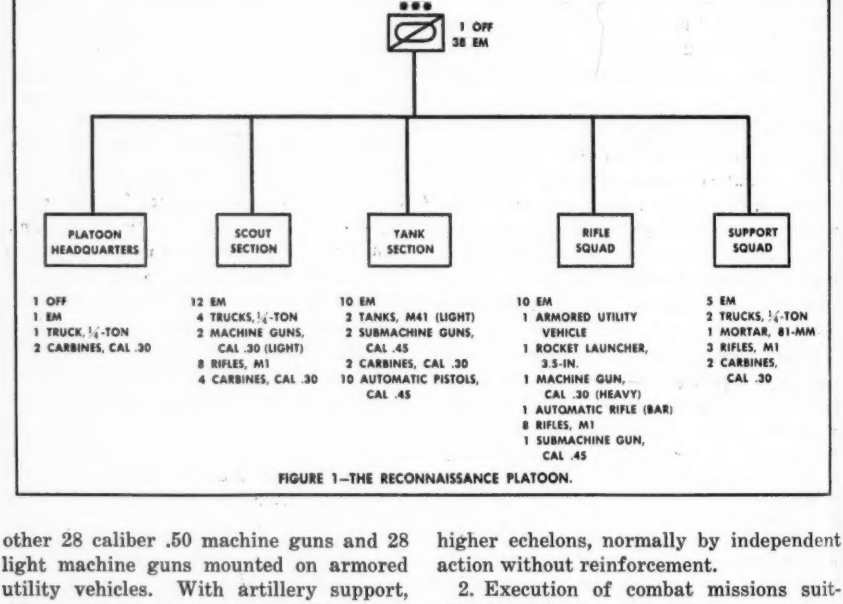


FIGURE 1—THE RECONNAISSANCE PLATOON.

Depending on the type of mission to be undertaken, suitable reinforcements can be attached to the reconnaissance battalion, and it, therefore, becomes an armored task force capable of all missions which can be assigned to an armored unit. Thus, the division commander has in his reconnaissance unit the nucleus around which he can form any special task force desired.

The Department of the Army Table of Organization and Equipment for a reconnaissance battalion in an armored division gives it these capabilities:

1. Reconnaissance and security for higher echelons, normally by independent action without reinforcement.

2. Execution of combat missions suitable for light armored units.

3. Operation as an armored task force when suitably reinforced.

These capabilities, made possible by the organization, equipment, and training of a reconnaissance battalion, open the door for missions limited only by the imagination of the division commander. The battalion can be used as a security force on either flank, to protect the lines of communication, or to screen the advance or withdrawal of the division. On the other hand, full use of its capabilities can be realized by also assigning combat missions to the battalion, reinforcing it with medium or heavy tanks, artillery, and en-

gineers as the situation demands. There is no reason why any of the following missions cannot be assigned to a reconnaissance battalion:

1. To thrust quickly to seize an important terrain feature or objective, and to hold it until the division can consolidate the position.

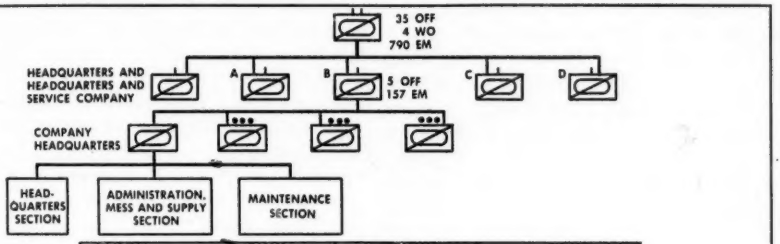
2. To form a fourth command in the armored division when needed.

3. To conduct raids in open warfare through enemy lines at weakly held points.

4. To assault a position, as an infantry or armored unit.

5. To defend a position, as an infantry unit.

If flank security is to be provided for a combat command, the reconnaissance battalion can well provide that security. A most effective way to provide such security is to reinforce the battalion with a company of medium tanks, two or three of the division light aircraft, and to provide artillery support. Then assign to this force a zone of advance and an objective on the flank of the combat command. Thus, automatically, flank security has been provided for the combat command, and, in addition, the full combat power of the reconnaissance battalion has been employed.



WEAPONS	RECON CO INF DIV	RECON BN ARMD DIV
TANK, M41, W/ARMAMENT [1] (LIGHT)	7	30
VEHICLE, UTILITY, ARMORED [2]	5	28
MORTAR, 81-MM	3	12
LAUNCHER, ROCKET, 3.5-IN	6	36
GUN, MACHINE, CAL .50 [3]	3	17
GUN, MACHINE, CAL .30 HEAVY	3	12
GUN, MACHINE, CAL .30 LIGHT	6	30
RIFLE, AUTOMATIC, CAL .30	3	12
RIFLE, CAL .30, M1	64	263
CARBINE, CAL .30	57	331
GUN, SUBMACHINE, CAL .45	17	104

[1] ARMAMENT: ONE 76-MM GUN, ONE CALIBER .50 MACHINE GUN, TWO LIGHT MACHINE GUNS, THREE MACHINE-GUN GROUND MOUNTS.
[2] ARMAMENT: ONE CALIBER .50 MACHINE GUN, AND ONE LIGHT MACHINE GUN WITH GROUND MOUNTS.
[3] MOUNTED ON ADMINISTRATIVE VEHICLES.

FIGURE 2—THE RECONNAISSANCE BATTALION, ARMORED DIVISION.

Combat Role of the Reconnaissance Battalion

No longer can a reconnaissance unit be called a "sneak and peek" outfit which refuses combat except when defending itself. As long as the unit must advance rapidly, the noise of its vehicular equipment destroys its ability to gain information without engaging in combat. Today, a reconnaissance unit fights, or is prepared to fight, while gathering information of the enemy.

Because of the rapidity of mechanized advances, reconnaissance units must remain mounted and reconnoiter by fire. An exception to the above occurs when the unit's mission is pure reconnaissance, such as when operating dismounted or on vast, barren, level expanses of terrain.

The fact that a reconnaissance unit is capable of combat is tremendously important. In addition to reporting information of intelligence value, the unit can destroy small enemy units when found; or delay the advance of or inflict serious casualties on an enemy advancing in force. A reconnaissance unit has the capability of delaying, within reason, a superior enemy force, thus allowing the division time to organize to meet such a force.

In this discussion, the implication must not be drawn that reconnaissance units should not be utilized in reconnaissance and security missions. Many times, such missions are ideal and the best possible employment for the unit. However, a word of caution against assigning one battalion the mission of protecting widely separated flanks. Such missions present the battalion commander with almost insurmountable problems of control and co-ordination. If necessary, it is better to give the mission of protecting the more dangerous flank to the battalion minus a company. The detached company can then be attached to a major command to provide the desired security on the other flank. Such detachment, of course, reduces the combat effectiveness of the battalion.

Armored Cavalry Regiment (Light)

Corps commanders are concerned with the employment of reconnaissance units, for each corps usually has assigned to it at least one armored cavalry regiment (light).

The armored cavalry regiment (light) is composed of three reconnaissance battalions, a headquarters and headquarters company, and a service company. These battalions are organized to operate independently or under the control of the regiment. They normally do not receive attachments for combat and, therefore, are organized differently than the reconnaissance battalion organic to an armored division. Each battalion in the armored cavalry regiment (light) has only three reconnaissance companies. However, in addition to these three companies, the armored cavalry reconnaissance battalion has an organic medium tank company and an assault gun company to enable it to conduct operations independently. The organization and principal weapons of the armored cavalry regiment (light) are shown in Figure 3.

The corps commander, therefore, has at his disposal three reconnaissance battalions capable of employment as a regiment or as independent battalions without attachments normally being necessary. Each of these battalions has nine of the basic platoons—three less than the armored division reconnaissance battalion—or a total of 27 platoons in the regiment.

The regiment is a unit with considerable fire power, completely mobile and organized and equipped for almost any mission. It is a powerful and balanced organization with a total of 123 light and medium tanks; the equivalent of a battalion of light artillery in its 18 assault guns (105-mm howitzers); 27 81-mm mortars; 130 3.5-inch rocket launchers; and 206 automatic weapons including caliber .50 machine guns, caliber .30 heavy and light machine guns, and Browning automatic rifles. These weapons do not include the machine guns mounted on each tank and armored utility vehicle, and the individual weapons of the men in the regiment.

A corps commander, with this versatile and powerful unit, has at his disposal a small armored force which is capable of missions similar to those assigned to a combat command of an armored division.

If it is augmented with corps artillery and heavy tanks from the armored cavalry group of the corps, it gives the corps commander an armored force ready for any combat mission not requiring the full strength of an armored division. The employment of the armored cavalry regiment (light) on combat missions permits the corps commander to retain his armored division, uncommitted, for use in the critical zone or avenue of attack, to ensure decisive and speedy victories.

The capabilities of the reconnaissance battalion of the armored cavalry regiment (light) are:

1. To perform security and reconnaissance missions for higher echelons, normally without additional attachments.

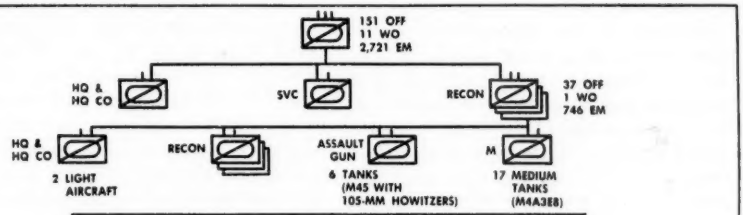
2. To operate as a light armored task force in security and light combat missions, without additional attachments.

3. To operate as a highly mobile armored task force, when suitably reinforced.

A Defensive Mission

Its mobility, fire power, and excellent communications make the armored cavalry regiment (light) an ideal unit for defensive missions wherever there is a suitable obstacle to the enemy's rapid advance, such as a river line. An unfordable river provides the corps commander with an opportunity to use an armored cavalry regiment (light) on a front far greater than that which an infantry regiment is capable of defending. The use of armored cavalry in such a situation permits the corps commander to save his infantry for other uses.

The scout sections, reinforced as necessary, easily can cover a long river line, ensuring that the enemy does not make a crossing unnoticed. The excellent communication system within the regiment



WEAPONS	RECON BN	ARMD CAV REGT (L)
TANK, M46, W/ARMAMENT (MEDIUM) [1]	17	51
TANK, M45, W/ARMAMENT (ASSAULT GUNS) [2]	6	18
TANK, M41, W/ARMAMENT (LIGHT) [3]	23	72
AIRPLANE, LIAISON (LIGHT)	2	8
VEHICLE, UTILITY, ARMORED	27	97
MORTAR, 81-MM	9	27
LAUNCHER, ROCKET, 3.5-IN	33	130
GUN, MACHINE, CAL .50	12	56
GUN, MACHINE, CAL .30 HEAVY	9	27
GUN, MACHINE, CAL .30 LIGHT	21	84
RIFLE, AUTOMATIC, CAL .30	9	30
CARBINE, CAL .30	230	818
RIFLE, CAL .30, M1	285	1,006
GUN, SUBMACHINE, CAL .45	119	495

[1] ARMAMENT: ONE 90-MM GUN, ONE CALIBER .50 MACHINE GUN, TWO LIGHT MACHINE GUNS, THREE MACHINE-GUN GROUND MOUNTS.
[2] ARMAMENT: ONE 105-MM HOWITZER, ONE CALIBER .50 MACHINE GUN, TWO LIGHT MACHINE GUNS, THREE MACHINE-GUN GROUND MOUNTS.
[3] ARMAMENT: ONE 76-MM GUN, ONE CALIBER .50 MACHINE GUN, TWO LIGHT MACHINE GUNS, THREE MACHINE-GUN GROUND MOUNTS.

FIGURE 3—THE ARMORED CAVALRY REGIMENT (LIGHT).

permits the rapid massing of its fire power and tank strength at any threatened crossing site, to destroy any but a major enemy assault.

In the advent of a major hostile effort, the regiment would have early warning of such preparations, thus giving the corps commander the time to make the necessary adjustments in the dispositions of his forces. Even assuming that an efficient and able enemy forced a crossing with complete secrecy and surprise, there is still sufficient power in the regiment to harass and contain the enemy's efforts to advance. This action should provide the time necessary for the corps to assemble its reserve, and launch a decisive counterattack at the most effective time against the bridgehead.

An Offensive Mission

On the offense, the capabilities of the regiment are again imposing. Where a full armored division is not required or is not available, the regiment can exploit the success of an infantry division's penetration of hostile defenses. The armored division (if available) can then be used in a more decisive sector, or held intact to deliver a final crashing blow when resistance builds up to stop the regiment.

There can be no doubt that the regiment and its battalions are capable of providing flank protection for the corps. If the flanks are open, the battalions can range far and wide, operating beyond the support of any major unit. Under these conditions, the regiment can provide ample warning of an enemy's approach, and can conduct, within its combat limitations, delaying and harassing operations to slow the advance of an enemy force. These early warnings and delaying tactics provide the time and information needed for the corps commander to react with the necessary force. These capabilities of the armored cavalry regiment (light) apply to any screening mission assigned to it by a corps which is engaged in defensive or offensive operations.

An Example of Combat Employment

The versatility of the armored cavalry regiment (light) is indicated by its employment during a retrograde movement of a corps. A corps commander decides to go on the defensive along favorable terrain some distance to the rear of his present position. It is necessary to prevent the enemy from advancing until such time as the infantry divisions can develop the defensive position. The corps commander's forces consist of infantry divisions, an armored division, an armored cavalry regiment (light), an armored cavalry group consisting of three heavy tank battalions, and supporting troops.

It is obvious the armored division, highly mobile and powerful, should constitute the bulk of the corps reserve. The armored cavalry regiment (light) should be used to maintain contact with the advancing hostile forces, and the heavy tanks of the group should be utilized to deepen the antitank defenses along likely avenues of approach in the defensive positions. The heavy tanks should also be considered as part of the corps reserve, in addition to the armored division.

How simple it would be to use the armored division, the armored cavalry group, and armored cavalry regiment (light) to form a covering force to ensure that the enemy is delayed sufficiently to permit the remainder of the corps to organize its defensive position adequately. This covering force, completely mobile, with tremendous fire power and ample communications, can delay a superior enemy force on a broad front and force it to fight for every yard of ground.

Let us visualize such an operation. The armored division, reinforced with corps medium artillery and one battalion of heavy tanks from the armored cavalry

group, is the covering force in the corps zone, with a mission of delaying the advance of the enemy for 5 days.

The armored cavalry regiment (light), reinforced with two battalions of light armored artillery and one battalion of heavy tanks from the armored cavalry group, maintains contact with the enemy and delays the advance of hostile forces until enemy action forces it to withdraw through the initial delaying position of the armored division.

Initially, the regiment operates directly under corps control, providing the corps commander with information of the nemy's advance until such time as the regiment is driven back through the armored division's initial delaying position many miles in front of the corps selected defensive position. Direct communications and litison between the regiment and the armored division ensure the necessary co-ordination between the force maintaining contact, and the covering force. The reinforced regiment, with its mobility and fire power, can certainly delay the rapid advance of the enemy even on a broad front, and provide the time required for the covering force to establish its initial delaying position. Upon passilng through the initial delaying position of the armored division, the regiment is attached to the armored division for continued combat.

When the regiment is attached, the armored division commander may employ it to protect his flanks, but he should bear in mind the power and combat capabilities of the regiment. He now has at his disposal the equivalent of a fourth combat command, which enables him to employ three commands on the line, and retain the fourth in reserve. Another formation might be adopted, so as to have two combat commands on the line, with the reserve command and the regiment deployed in subsequent positions to the rear, to ensure depth in his delaying action.

Thus far, the armored cavalry regiment (light) has been employed in a combat role: first, as the force maintaining contact with the enemy and delaying the enemy's advance; and then, as a part of the main covering force. As the covering force moves back through the general outpost line and reverts to corps reserve, there are still many missions which can be given to the regiment. It may be assigned a smaller sector of the defense position to permit the use of the infantry divisions elsewhere in the defense; it may be assigned to the corps reserve; or it may be assigned to protect rear areas from partisan activities and from vertical envelopment, if the enemy has the capability of an air drop. Another possibility is to reinforce the regiment with a heavy tank battalion, thus creating a small, mobile task force capable of counterattacking an enemy penetration. The armored division, in the event of a major penetration, could be used as the "Sunday Punch." Here, again, the versatility of the regiment, and its power and mobility, are being utilized to the utmost.

Conclusions

This example has been used to demonstrate how reconnaissance units can be employed profitably. The habitual use of such a combat unit only for flank security or reconnaissance missions is a waste of available power. In many cases, such wastage may be the difference between victory and defeat. As long as any unit capable of combat is available, that unit must be used to the greatest extent for combat. Any large unit that frequently employs its reconnaissance element in a combat role, permits the major elements of the command to be used more decisively.

The concept of dividing a combat unit into multiple small reconnaissance elements to be parcelled out to any and all commands present is unsound, for its com-

bat efficiency is destroyed. By employing it as a complete unit on a broad front, the commander can provide co-ordinated security and reconnaissance for all elements of the command.

The need of the moment is an understanding of a reconnaissance unit's capabilities, and an active imagination to determine its proper employment.

A vital need in our combat effectiveness is equipment superior to that in the hands of any potential enemy. Our need here is predicated upon the Army's role in the defense plans of our Nation which require it to be ready at all times to move to avert aggression by the fastest means, and with the greatest fire power and logistical support.

General J. Lawton Collins

A fighting force might be likened to a huge machine, composed of numerous subassemblies which must be joined and put to test as a single unit. The flaws of the assemblies and, indeed, the engineering worth of the entire mechanism will be revealed only when it is operated as a unit. Maneuvers are the proving ground of training.

General Mark W. Clark

Waterborne Envelopments

Shore-to-Shore Amphibious Operations

Lieutenant Colonel Delbert L. Bjork, *Infantry*
Instructor, Command and General Staff College

THE waters of the earth, for centuries, have been the highways of peaceful international commerce. In World War II, these routes were employed for the first time by the military to invade successfully enemy nations or territory held by them. History indicates that, from 1942 to the end of hostilities, there were 61 amphibious operations conducted by our forces acting alone, or in concert with our Allies and that in so doing the technique of conducting these operations was developed to a high degree. (See Figure 1, pp. 46-47).

The use of atom bombs and other modern technological developments of warfare will not eliminate our capability of moving ground combat forces over water barriers. Speed, deception, and dispersion must be incorporated into our operations plans to overcome this threat.

A third world war will force us again to employ the water routes of the world to retain or re-establish a foothold on other continents. It is true that airborne operations will relieve, to some degree, our dependence upon water routes to carry the war to the enemy across sea barriers. However, we must continue to maintain our ability to move combat units tactically by land, sea, and air. We cannot eliminate the use of any one medium: to do so would allow the enemy to concentrate his defenses against the means selected.

Normandy, Leyte, Southern France, Luzon, Italy, and Okinawa, to mention only a few of the campaigns of World War II, bring to mind the extent to which amphibious operations were employed in the past War. The magnitude of these operations, and the great military victories they made possible, attracts the attention of military students throughout the world.

Since the War, our military establishment has developed joint operational procedures to facilitate the conduct of large amphibious operations. Included therein are many lessons learned in World War II. In our postwar joint planning, however, the small-scale subsidiary amphibious operation has been overlooked. It is assumed, apparently, that if we can conduct a large, complicated amphibious assault landing, a smaller one is just a simple adaptation of the larger pattern and requires only the application of the same principles and techniques. From the Department level, that may be true. To the tactical commander in the field, however, there are many detailed problems to be resolved before we can exploit fully the advantages of amphibious operations, regard bodies of water as highways over which ground combat units can be transported, and before we can think of islands and coast lines as soft spots in the enemy's

Amphibious operations increase the tactical mobility of ground forces. A commander familiar with the techniques of conducting these operations enhances his chances for success against a determined enemy

defensive set-up instead of natural military obstacles.

It is interesting to note that the Engineer School, at Fort Belvoir, Virginia, in working on this problem, has developed the modern concept of the amphibious support brigade, a type unit to provide logistical support for the various types of amphibious operations.

Types of Amphibious Operations

From the Army viewpoint, an amphibious operation is a landing, made from ships or craft, to seize an objective on land, in which the forces involved are dependent primarily upon waterborne means for transportation to the objective area and for initial tactical and logistical support. In carrying out this operation, special

AMPHIBIOUS OPERATIONS—WORLD WAR II

OPERATION	CHARACTER OF OPERATION	OVER WATER DISTANCE IN MILES	NO. OF SUBSIDIARY OPERATIONS (Amph)
1. TARAWA	Ship-to-Shore	2000	0
2. MAKIN	Ship-to-Shore	2000	1
3. KWAJALEIN	Ship-to-Shore	2700	5
4. ENIWETOK	Ship-to-Shore	3000	5
5. PALAU	Ship-to-Shore	1800	2
(Includes the Peleliu Islands)		4034	
6. SAIPAN	Ship-to-Shore	4000	1
7. GUAM	Ship-to-Shore	1500	0
		3318	
8. TINIAN	Shore-to-Shore	15	0
9. IWO JIMA	Ship-to-Shore	750	0
		3300	
10. GUADALCANAL	Ship-to-Shore	1200	1
11. RUSSEL ISLAND	Ship-to-Shore	1250	0
12. NEW GEORGIA	Ship-to-Shore	300	4
13. VELLA LAVELLA, TREASURY	Ship-to-Shore	400	0
	Ship-to-Shore	700	
14. BOUGAINVILLE	Ship-to-Shore	800	1
15. GREEN ISLAND	Ship-to-Shore	1000	0
16. EMIRAU ISLAND	Ship-to-Shore	1500	0
17. NORTH AFRICA			
a. Eastern T.F.	Ship-to-Shore	1820	3
b. Central T.F.		1980	3
c. Western T.F.		3000	None
18. SICILY	Ship-to-Shore and Shore-to-Shore (Mixed)	100 to 700	2
19. SALERNO	Ship-to-Shore	150 to 850	0
20. ANZIO	Ship-to-Shore	250	0
21. SOUTHERN FRANCE	Ship-to-Shore	600	0
22. NORMANDY	Ship-to-Shore and Shore-to-Shore (Mixed)	80 to 500	0
23. NASSAU BAY	Shore-to-Shore	60	0
24. KIRIWINA ISLAND	Shore-to-Shore	200	0
25. WOODLARK ISLAND	Shore-to-Shore	200	0
26. ATTU	Ship-to-Shore	2500	0
27. KISKA	Ship-to-Shore	2500	0
		200	
28. LAE	Shore-to-Shore	200	3
29. FINSCHAFEN	Shore-to-Shore	80	
		200	15
30. ARAWE	Ship-to-Shore and Shore-to-Shore	500	4
31. CAPE GLOUCESTER	Ship-to-Shore and Shore-to-Shore	82 to 500	2
32. SAIDOR	Shore-to-Shore	500	1
33. TALASSEA (M)	Shore-to-Shore	60	1

FIGURE 1.

techniques and equipment are used in debarking on a shore.

Amphibious techniques are used in four types of combat action involving ground forces. They are:

1. *Invasion.*—This operation involves a major effort on the part of all three services for the purpose of initiating a large land campaign, as in Normandy and Leyte.

2. *Seizure.*—In this operation, small areas, such as islands, are secured to provide advance bases, as, for example, the seizure of Okinawa and Iwo Jima.

3. *Shore-to-shore envelopments.*—This operation involves the tactical movement of ground combat forces, employing water transport, along or between coast lines, as at Anzio and Ormoc.

AMPHIBIOUS OPERATIONS—WORLD WAR II (Continued).

OPERATION	CHARACTER OF OPERATION	OVER WATER DISTANCE IN MILES	NO. OF SUBSIDIARY OPERATIONS (Amph)
34. MANUS ISLAND	Shore-to-Shore	500	12
35. HOLLANDIA	Ship-to-Shore	900 1000	0
36. TANAHMERAH BAY	Shore-to-Shore	1000	0
37. AITAPE	Shore-to-Shore	900	0
38. WAKDE-TOEM MAFFIN BAY	Shore-to-Shore	230	1
39. BIAK	Shore-to-Shore	300	20
40. NOEMFOOR	Ship-to-Shore	270	5
41. SANSAPOR	Ship-to-Shore	500	4
42. MOROTAI	Ship-to-Shore	700 920	4
43. LEYTE			
a. East Coast	Ship-to-Shore and Shore-to-Shore	1500 to 4000	75
b. Ormoc	Shore-to-Shore	165	
c. Polompon	Shore-to-Shore	15	
d. Comote Island	Shore-to-Shore	10	
44. MINDORO	Ship-to-Shore	300	15
45. LUZON			
a. Lingayen	Ship-to-Shore	800 2000	3
b. San Marceline	Ship-to-Shore	600	10
c. Subic Bay	Shore-to-Shore	30	
d. Mariveles	Shore-to-Shore	70	
e. Corregidor	Shore-to-Shore	30 300	10
f. Legaspi	Ship-to-Shore	150	30
46. NASUGBU	Shore-to-Shore	275	10
47. ZAMBOANGA	Ship-to-Shore	400	6
48. PARANG	Ship-to-Shore	600	10
49. MACAJALAR BAY	Shore-to-Shore	150 500	2
50. TAWI-TAWI	Shore-to-Shore	200	2
51. TARAKAN	Ship-to-Shore	640	3
52. BRUNEI BAY	Ship-to-Shore	1300	40
53. NEGROS	Shore-to-Shore	200	1
54. PANAY	Ship-to-Shore	200	2
55. CEBU	Ship-to-Shore	125	1
56. BOHOL	Shore-to-Shore	100	0
57. PALAWAN	Ship-to-Shore	600	10
58. BALIKPAPAN	Ship-to-Shore	1300	10
59. OKINAWA	Ship-to-Shore	900 3200 1300	4
60. OCCUPATION OF JAPAN	Ship-to-Shore	4500 2000 2300 2600	0
61. OCCUPATION OF KOREA	Ship-to-Shore	800 2000	0
			TOTAL 344

FIGURE 1 (Continued).

4. *Navigable rivers.*—In this operation, ground combat forces employing water transport are moved on the navigable rivers of a large land mass.

Techniques of Amphibious Operations

Amphibious operations have been further classified as either *ship-to-shore* or *shore-to-shore*, based upon the two differing techniques employed. The principal difference evolves around whether or not a transshipment from ships to landing craft is required before an assault on the hostile shore is undertaken. When personnel and equipment must be unloaded from one type of craft into another (ship-to-shore) before the landing, each item must be handled several times. It would be much easier to employ craft initially that can unload directly on the beach without transshipment (shore-to-shore). Operations which require transporting the assault forces great distances, however, are forced to employ ships that are designed primarily for seaworthiness, speed, and large carrying capacity. These ships, as yet, are not capable of beaching, and so transshipment is required.

There is no hard and fast dividing line between the two techniques. Generally, however, the ship-to-shore technique is used when an invasion or seizure type of operation is contemplated, because of the great distances that are involved. It must be remembered that the shore-to-shore technique is easier and is employed whenever possible. Shore-to-shore operations are limited in range and, therefore, are generally employed in the exploitation phase which follows the successful execution of an invasion or seizure, such as envelopments along and between coast lines, and on navigable rivers.

The factors which determine which of the techniques to use are the:

1. Type of operation contemplated.
2. Type of shipping or landing craft required or available.
3. Distance from the embarkation area to the objective area.

Definitions

To clarify the terms used in this article the following definitions are provided:

1. *Ship-to-shore operations.*—Involves transportation in sea-going ships, generally over long distances, to the objective area. A transshipment of the assault forces, their equipment, and combat supplies into small landing craft for the landing on a hostile shore is necessary. (See Figure 2.)

2. *Shore-to-shore operations.*—Involves the moving of combat troops and their impedimenta directly from the friendly base to the hostile shore, without transshipment. (See Figure 3.)

World War II Amphibious Operations

Of the 61 amphibious operations conducted during World War II, 26 were of the invasion type and 35 were seizures. About one-third of all the operations used shore-to-shore techniques; the remainder utilized ship-to-shore procedures.

As part of these major amphibious undertakings, 344 subsidiary amphibious operations were conducted. All of them used shore-to-shore techniques; approximately 23 employed navigable rivers as routes over which the tactical movement of troops occurred.

Figure 1, on pages 46 and 47, indicates in detail the amphibious operations conducted by our forces during World War II.

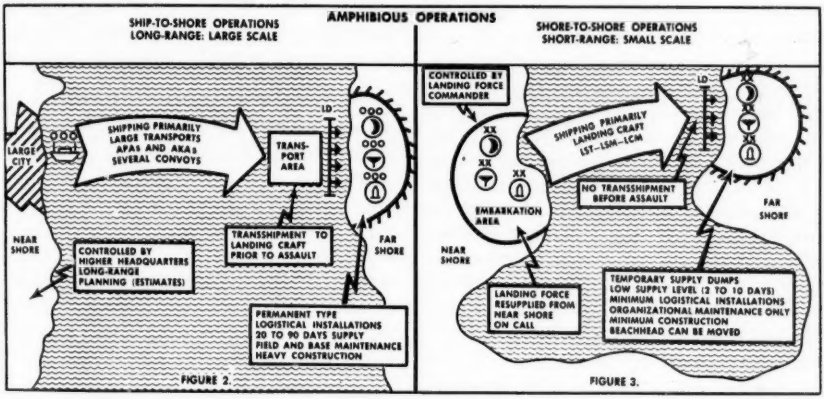
Waterborne Envelopment

WATERBORNE ENVELOPMENTS ARE SHORE-TO-SHORE AMPHIBIOUS OPERATIONS, SUBSIDIARY TO OTHER GROUND COMBAT OPERATIONS.

1. *Characteristics.*—Waterborne envelopments include most of the factors common to any amphibious operation. They differ in several characteristics, which are

herewith presented in detail. The advantages of employing the more simple shore-to-shore technique should be noted as compared with ship-to-shore procedures.

a. The range of waterborne envelopments is limited only by the length of time or water distance over which landing ships and craft can carry troops safely, and bring them to the landing beach in condition for combat. Living conditions



on loaded landing craft, the weather, and sea conditions during the voyage are important limiting considerations.

b. The open-water distance covered by landing craft will be considerably greater in a shore-to-shore movement than that traversed between troop ships in the transport area and the shore during a ship-to-shore movement. (See Figure 2.)

c. Embarkation areas will be much closer to the landing area in a shore-to-shore movement than is the case where a ship-to-shore movement is employed. (See Figure 3.)

d. If the number of troops to be transported is the same, the number of amphibious landing craft required for a shore-to-shore movement must be greater than for a ship-to-shore movement.

e. Waterborne envelopments require sufficient landing craft of appropriate types to carry all of the troops, equipment, and supplies necessary to seize a beachhead for a required period before reinforcement.

f. The problem of air support in a shore-to-shore operation is simplified, due to the shorter distances involved.

g. Embarkation can be conducted more quickly and with fewer men in a shore-to-shore operation than in a ship-to-shore movement.

h. The entire facilities of the near (embarkation) shore are available during the entire operation for the dispersion, concentration, assembly, or movement of troops, matériel, and craft in a shore-to-shore movement.

i. The time necessary to plan and execute a shore-to-shore movement is less than that for a ship-to-shore movement.

j. The beach selected for the landing in a shore-to-shore movement must be within the operating range of the landing craft employed, either from the initial embarkation point or an intermediate fueling point.

k. Reserve and supporting units, not afloat in the immediate proximity of the landing areas, may be held in readiness

on the embarkation shore. Consideration must be given to the time necessary for their eventual embarkation and journey to the far shore, and to the possible necessity for additional craft.

l. Operations employing trained troops in a waterborne envelopment, who ultimately will link up with other friendly forces already ashore, may be conducted with minimum detailed planning for logistical support. Balanced logistical support can be provided, on call, from the near shore.

m. In a shore-to-shore operation, supply levels in the beachhead can be kept low, depending upon the time required for ground link up with adjacent units, and turn-around time from the near shore.

n. In a shore-to-shore operation, beachhead logistical installations are kept to a minimum. Only those essential to store and issue the relatively small amount of supplies are developed. The bulk of the service support can be procured quickly from the near shore.

o. Great flexibility is inherent in the beachheads developed in shore-to-shore operations. If desired, the beachhead can be designed for rapid displacement to areas close to the main force.

2. *Planning.*—In planning for a waterborne envelopment, the principles of the offensive, as they apply to envelopments, are affected by the characteristics of amphibious operations as detailed above. Overwater movements covering great distances at relatively high speeds facilitate the attainment of surprise. This does not make the commander's job easier. Instead, it increases the importance of attaining and maintaining the initiative inherent in offensive action.

Plans must be bold and aggressive to exploit fully the opportunities obtained by surprise. Planning must also be carefully tempered with a detailed study of the terrain and enemy capabilities. A deep envelopment, designed to turn the enemy from his position, can be reversed easily, and the enveloping force becomes the enveloped force, cut off from tactical and logistical support.

The waterborne envelopment, as in any envelopment, strikes the enemy on ground of the attacker's choice. It forces the enemy to fight at a disadvantage, in more than one direction, with a consequent divergence of his efforts. It produces decisive results by destroying the enemy's combat elements, his vital rear area installations, and his supporting elements. Once turned from his position, or enveloped and forced into a pocket, relentless pressure must be maintained on all sides to prevent the enemy from reorganizing, thus ensuring his destruction.

Plans for a shore-to-shore movement need not be projected months into the future, as must be done in the case of an overseas expedition. Normally, all planning agencies—ground forces, air forces, and naval forces—are located in close proximity to one another. Landing ships and craft and, in some cases, locally procured small boats and shipping will be used for most of the overwater movement. This reduces greatly the activities of the transport quartermaster. The establishment of priorities for the loading and unloading of troops and matériel is a relatively simple task, whereas, in a long overseas movement it becomes an involved problem.

3. *Transporting service.*—*a.* The execution of a shore-to-shore movement usually will involve the use of ships and craft supplied by the Navy.

b. Amphibious support brigades, reinforced, are organized to provide the boat and shore logistical elements required for the transportation and support, on shore, of a reinforced infantry division in a shore-to-shore operation.

4. *Embarkation.* — The embarkation point normally will be closer to the objective than in ship-to-shore operations.

Harbor facilities for embarkation generally are lacking, and often embarkation will take place over an open beach with only such facilities as can be improvised on the spot. This, however, provides a considerable area, near the point of embarkation, for the dispersion of troops and supplies. The embarkation point must be close enough to the objective to permit the efficient operation of the type of landing craft used. It should be concealed from enemy ground observation. A good road net into the embarkation area is essential.

5. *Movement.*—The movement, in a shore-to-shore operation, will be made predominately in landing ships and craft. The distance covered by the small craft normally will be greater than in a ship-to-shore movement, yet it must not exceed the range over which small craft can operate efficiently. The enervating effect on the combat efficiency of troops will, therefore, be greater in a waterborne envelopment than in a ship-to-shore movement where the troops spend less time in small craft.

Consideration must be given to the comfort of troops engaged in a shore-to-shore movement. Normally, this will result in not loading all the small craft to capacity. In addition, the weather and sea conditions can effect drastically the movement plans, and so provisions must be made for adequate and timely weather and sea forecasts. It must be noted, however, that the relatively greater number of small craft employed in shore-to-shore movements provides greater flexibility in concentrating and moving reserves and supplies, than is found in ship-to-shore movements.

6. *Fire support.*—Adequate naval gunfire and air support must be provided. Naval gunfire will be available in its normal role. Normally, air support will be provided by land-based aircraft, although carrier-based aircraft, if available, can be used. Under favorable conditions, friendly artillery from the near shore may be able to fire into the objective area.

7. *Logistics.*—The relatively short distance from the near shore to the far shore permits logistical flexibility. The landing force, initially, will arrive in the objective area with only a small quantity of supplies. Therefore, a smaller number of service troops will be required in the beachhead. The build up of reserves on the far shore also can be held to a minimum, as any critical items can be procured in a relatively short period of time. Vulnerability to air attack, employing conventional or atomic bombs, and artillery bombardment is reduced greatly in such a noncongested beachhead. Due to the small amounts of supply, beach installations are not permanent in character. There is one additional factor that must be considered: the logistical organization in a shore-to-shore movement must provide for the operation of both ends of the supply line, a responsibility of the landing force commander.

8. *Flexibility.*—In order to conduct waterborne envelopments successfully in the future, the training of units for amphibious operations must include the techniques of small shore-to-shore operations. Only for those operations concerned with large-scale invasions and seizures were all the required forces assembled to ensure superiority, in all matters, at the area selected for the landing. On the other hand, most of the 344 subsidiary amphibious operations conducted in the last War were executed under adverse conditions.

The commanders of waterborne envelopments were faced with problems involving shortages in amphibious lift and inadequate air support. Frequently, they had to engage enemy forces that were superior in strength. Seldom were they provided full-strength units, and equipment

Amphibious operations in World War II included both ship-to-shore and shore-to-shore movements. Above, assault boats and alligators approach Enubuj Island, Kwajalein Atoll; a ship-to-shore operation. Below, the first wave of American troops hits the beach on Wakde Island; a shore-to-shore operation.—Department of Defense photos.

Amphibious operations were aided immeasurably by the development of craft which permitted the discharging of personnel or cargo directly on the beach. Above, LCMs and LCVPs unload machinery and troops on the beach at Saipan. Below, landing craft approach Dulag village during the operations on Leyte.—Department of Defense photos.

of the types and quantities desired. Generally, it was a matter of using what was available, improvising to the greatest degree possible, and employing, to the utmost, the principles of surprise and maneuver to accomplish the assigned mission. To improvise, yet ensure combat effectiveness in all types of amphibious operations, commanders and staffs must understand the capabilities and limitations of the equipment provided, and its use in varied situations.

In summation, if the conditions exist that make shore-to-shore amphibious operations a capability, then waterborne envelopments provide commanders with an additional method of carrying large, ground-fighting task forces long distances. Troops, ready for sustained combat, can be landed and supported tactically and logistically.

Waterborne envelopments (shore-to-shore movements) have the following advantages over long-range, large-scale, amphibious operations.

1. The operations are less complicated and require, proportionately, less planning and preparatory time.

2. Waterborne envelopments provide the commander with a maneuver of great power and flexibility, especially when conducted within range of artillery from the near shore. Beyond artillery range, such operations are forced to carry more fire support means, with the result that its flexibility suffers markedly.

3. A relatively small target is provided for enemy atomic attack. By employing deception, dispersion, and speed to the maximum, this threat can be even further reduced.

4. Logistical support from the near shore requires only a minimum of service troops and supplies in the beachhead. This flexibility and dispersion of forces is a marked advantage, when considering the effect of atomic bombs against large congested beachheads.

5. Minimum beachhead requirements permit the beachhead to be moved readily, resulting in a saving of transportation and the rapid logistical support of front-line units.

In considering these advantages, however, it must be remembered that there is a limit to the depth of a waterborne envelopment. Envelopments with objectives beyond near shore tactical support, or which do not envision immediate link up with other ground forces, are in danger of defeat in detail. Forces engaged in such a maneuver must carry with them, initially, the additional means to prevent destruction. The problems which then must be faced are comparable to those encountered in planning and executing a large-scale landing.

Control of the route to be traveled to include both the air and sea is essential. No more efficient means of destroying troops exist than by sinking the loaded ships en route.

Principles of War Applied

From the standpoint of applying the principles of war, waterborne envelopments have the following characteristics as compared with an envelopment employing only land approaches.

The objective.—Assuming that the conditions exist which permit the use of a waterborne envelopment, then a waterborne envelopment makes critical objectives, deep in the enemy rear, more vulnerable to heavy attack.

Simplicity.—From the over-all standpoint, waterborne envelopments are not simple. Such operations demand specialized planning, equipment, facilities, and trained personnel.

However, when a commander has the capability of conducting a shore-to-shore amphibious operation, the execution of this maneuver is comparatively simple, resulting in the delivery of a large force deep in the enemy rear. The forces landed

will be fresh, ready to fight, and well supported tactically and logistically.

Unity of command.—This principle of war is the basic concept behind the organization of our military forces. It is agreed universally that any fighting force can have but one commander. This is of particular importance in amphibious operations which involve the joint employment of land, sea, and air forces as a team.

The offensive.—By developing the ability of conducting amphibious operations, tactical commanders are provided with an additional capability of maintaining freedom of action. As indicated, bodies of water are no longer obstacles; they are open avenues of approach capable of being used in a variety of ways. They provide routes by which large combat forces can be transported and maintained deep in enemy territory.

Maneuver.—Waterborne envelopments provide an additional means for the movement of personnel and matériel. Maneuver, in itself, can produce no decisive results, but, properly employed, it makes decisive results possible.

Mass.—Amphibious operations are an excellent illustration of this principle of war. They provide for the concentration of ground, sea, and air forces against selected critical objectives. The greatest concentrations of combat shock power can be assembled, moved, directed, and maintained against any point selected. When considered from the standpoint of an enemy forced to defend a coast or shore line, this threat is so great that island areas can be defended only by controlling the sea.

Economy of force.—From the over-all standpoint, any action involving the use of waterborne envelopments requires more men and specialized equipment to deliver a fighting force to its destination than does the use of land routes.

From the viewpoint of a combat commander, however, if the means for the delivery and subsequent support of a fighting force are available, the landing force can make the move with the least possible loss of men and effort. The men land fresh, ready for sustained action.

Surprise.—Because of its speed and power of execution, a waterborne envelopment provides a commander with the capability of striking anywhere with a large force, at the time and in a manner of his own choosing.

Assuming, therefore, that all counter-intelligence activities are functioning properly and that the enemy is unaware of our intentions, we find that waterborne envelopments increase our capability to effect surprise.

Security.—The application of this final principle in conducting a waterborne envelopment brings out one of the great weaknesses of this type of operation. If our security measures are not adequate, the combat commander undertaking a waterborne envelopment may be surprised by the stiffened resistance provided by the enemy. An example of the consequences of the violation of this principle is found in the way US forces repeatedly were able to sink Japanese troop ships in World War II.

Conclusions

The amphibious techniques required to conduct waterborne envelopment successfully were developed to a high degree during World War II. A knowledge of these techniques is being retained today only by proponents of the amphibious support brigades. Amphibious training has diminished to the point where it includes only seizures and invasion type operations. The 344 subsidiary amphibious movements have been relegated to the status of special operations.

The invasion and seizure types of amphibious operations are, by far, the most vulnerable to atomic bombs, guided missiles, and other new developments in war-

fare. It is likewise true that waterborne envelopments and other subsidiary amphibious operations, of reinforced division size or smaller, are also vulnerable. Their vulnerability, however, is significant only during the voyage from the embarkation area to the objective, a relatively short period of time. This period of vulnerability can be reduced further by increasing the speed and dispersion of the landing craft and the deception inherent in the operation, so as to offer a target no greater than similar units operating ashore.

From the Army standpoint, the next war will be principally a land war. We cannot, however, overlook the fact that two-thirds of the earth's surface is covered with water and that all of the continents have coast lines. It is logical to assume, therefore, that we can expect to conduct military operations in areas that are ideal for waterborne envelopments. For that reason, we must continue to develop all possible means of providing this form of tactical mobility.

NEXT MONTH

Main Articles

The seven main articles include *National Security and Freedom in Higher Education—The Viewpoint of the Military* by Brigadier General Arthur G. Trudeau; and *Some Accomplishments of Unification in the Field of Logistics* by Colonel Alfred B. Denniston.

Foreign Military Digests

The foreign digests include "Rommel versus Montgomery" from *Bellona*, a Polish language military quarterly published in England; and "The Case for a Lighter Tank" from the *Canadian Army Journal.*

Books for the Military Reader

Reviews of *Defense of the West* by B. H. Liddell Hart, and *Popski's Private Army* by Lieutenant Colonel Vladimir Peniakoff, plus other books of interest.

Reception Processing of Enlisted Personnel

Lieutenant Colonel Everett A. Luckenbach, *Armor*
Instructor, Command and General Staff College

RECEPTION processing plays an important part in the Army's personnel management system.

Important technical and administrative steps are accomplished during the processing. It ensures that each man will receive the rights and benefits which are available to him. The best results are achieved when the processing is directed by specialists.

The purpose of this article is to explain the operation of reception processing in one of the Army's training divisions. It should be noted that the functions of the training division incorporate, in whole or in part, the wartime functions of reception centers, basic training centers, and branch training centers. This consolidation is possible during peacetime, because of the comparatively small input of new men into the Army.

What is Reception Processing?

Reception processing consists of those administrative activities required initially to process enlisted men entering the military service. These activities consist of the:

1. Receiving and checking of incoming men, orders, and records.
2. Segregation of men with prior service from recruits.
3. Orientation, to include the viewing of required films, attendance at lectures, and an explanation of the Articles of War.
4. Physical inspection and medical processing, to include the determination of an enlisted man's physical profile, his need for medical or dental treatment, a recording of his blood type, immunization, chest X-rays, and serological tests (when not previously accomplished).
5. Issuance of clothing and equipment.
6. Initial classification, initiation of records, and assignment to training companies.
7. Adjustment of personal matters.

Why Reception Processing?

Scientifically sound and ably administered reception processing, in peacetime as well as in time of war, ensures that the soldier is given every opportunity to be assigned to those duties wherein he can develop his latent abilities from the start of his service. It further ensures that the Army receives the optimum output from each soldier. Classification tests and interviews serve to determine each man's level of experience, his learning potential,

From the start of his service, the Army must ensure that it receives the optimum output from each soldier. Reception processing procedures assist in attaining this objective by indicating areas of latent ability

his field of greatest aptitude, and his career interests.

The adjustment of personal affairs is designed to explain, to each soldier individually, certain rights and benefits such as National Service Life Insurance, soldiers' deposits, and allotments of pay. At the completion of this explanation, the soldier may indicate his personal desires, at which time he is assisted in the preparation and submission of all necessary forms. The remainder of the activities listed as parts of reception processing are performed at this time and prior to the beginning of basic training.

Reception Processing Today

Our present system of reception processing provides that all of the processing be done at the training divisions which, in addition, are organized to give basic training to recruits, select personnel for attendance at schools, and process overseas replacements. The system further provided that all of the seven elements of reception processing be accomplished before individual training is begun.

Special Regulations 615-110-5 published by the Department of the Army on 10 February 1949, lists, in detail, the manner in which the processing steps are to be performed. Concerning the *conduct* of reception processing, it states: ". . . Based on the treatment received during the initial reception processing period, all personnel gain lasting impressions and form deep-seated convictions concerning military life. Personnel enlisted or inducted for military service must be impressed with the fact that the military establishment operates with efficiency and with the maximum attention to the individual's welfare and personal assignment preferences consistent with military requirements. By their planned, efficient, and considerate operation of reception, commanders can insure that there is implanted a desire to become career soldiers. . . ."

Wartime Reception Processing

Reception processing during time of war is essentially the same as that described in this article. What differences there are will exist because of the increase in the number of men to be processed. It is probable that reception processing during complete mobilization will be done at reception centers which, as the name implies, devote there entire time to these activities.

Reception Processing in a Training Division

The essential characteristics of reception processing carried on in the several training divisions now operating are the same. However, due to the physical layout of the posts, camps, and stations housing these training divisions, the actual sequence in processing activities may vary slightly. Described in this article is the system in use in the 3rd Armored Division, a training division stationed at Fort Knox.

Reception processing starts when the recruit arrives at Fort Knox, Kentucky. The vast majority of these new men arrive by train or by bus and are met by transportation from the training division. They are taken immediately to the initial reception point in the division area.

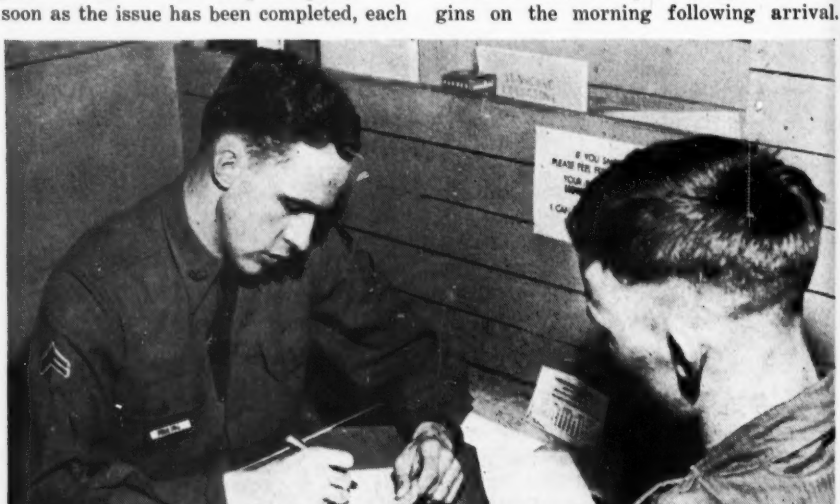
Upon the arrival of a group of men (or of an individual) at the initial reception point, all orders and other official papers are collected. The group is then conducted to a dining hall in an adjoining building where each man is given a hot meal, regardless of the time of day or night. While the men are eating, their orders and records are being checked by personnel of the initial reception point, and assignment to training or holding companies is made.

After eating, the group returns to the initial reception point to receive a brief welcome and orientation by the officer in charge, or his senior noncommissioned officer. Following the orientation, the men are informed as to their company assign-

The men pictured above are shown entering the receiving point, the first stop for all enlisted men assigned to the training division. Here, hand baggage is left while they are being fed, oriented, and assigned. Below, the Hall of Religion where each man is interviewed by a chaplain of his faith during reception processing.

ment, and are issued a duffel bag and the minimum clothing necessary to carry them until a complete issue of clothing is made on the first, full, processing day. This initial clothing issue is made in a room adjacent to the initial reception point. As soon as the issue has been completed, each man is transported to the company to which he was assigned. For men arriving in groups of 50 or less, the entire procedure from time of arrival at Fort Knox to time of delivery at the assigned training company area is normally 1 hour. Those men who arrive at Fort Knox after midnight but before breakfast, are processed as above, except that they are given beds in a barracks near the initial reception point for the remainder of the night.

After the men have been delivered to training companies, special orders are published to make the assignment official. Each paragraph of the special order, so far as practicable, contains approximately 30 men, all assigned to the same company. At the top of the extracted paragraph of the special order, a reception processing schedule is found for the group of men listed in that paragraph (see figure). These special orders are distributed to all concerned with the processing, which begins on the morning following arrival.



After completion of the aptitude testing phase, the man is interviewed by a classification analyst. The interview is one of the final steps in reception processing.

Each group of men is conducted through the processing stations by squad leaders and platoon sergeants, who use any free time for incidental training, which is of material assistance when basic training begins.

A "behind the scenes" activity takes place just after the special order is published. A forms processing unit, using machine writing equipment, preprints the forms used—approximately 20 are required—at the various processing stations, prior to the arrival of the processees. Among the items partially pre-printed are locator cards, soldier's qualification card, individual clothing record, identification

tags, and a stencil for marking trunk lockers and duffel bags.

To conform with the number of processees expected, the reception processing is designed to take care of groups of 30 men at a time, at most stations. This is done in order to reduce the waiting time at each of the processing stations. A master schedule is so arranged that eight such groups can begin processing each day. With only minor adjustments at each processing station, the size of the groups can be increased to 50 men to accommodate a higher-than-usual input.

Normally, the first scheduled day of processing includes a formal welcoming ceremony, the physical inspection and medical processing, the issue and fitting of complete clothing and equipment, the personal affairs interview, and the initiation of a service record.

The morning of the second day of processing is devoted to classification testing, when the first half of the personnel tests are given to all of the recruits who are in the second day of processing. Because the full battery of tests is too long to be completed in a single day, and because of the strain on those taking the tests, the last half of the tests is scheduled for the afternoon of the third processing day. Full use is made of the only available testing building and available trained testing personnel, for in any day the building is used in the morning by second day processees, and in the afternoon, by those in their third day of processing. The afternoon of the second day and the morning of the third day are used for the lectures, orientations, and interviews which are included in the processing.

The grade achieved on each of the personnel tests is entered on the soldier's qualification card, prior to the time scheduled for a classification interview which takes place on the fourth day of

1st Day 1 Sep 49
0900 - 0930 Reception Orientation Bldg 2420
0945 - 1045 Profile Eye Inspection, X-Ray Serology (bring duffel bag) Bldg 604
1230 - 1400 Clothing Issue (bring duffel bag) Bldg 1062
1430 - 1600 S/R & P/P. IB&A Bldg 603

2nd Day 2 Sep 49
0715 - 1130 Personnel Test Btry #1 6894
1300 - 1400 MVO Test Bldg 6718
1400 - 1500 Chaplain Interview Bldg 6751

3rd Day 6 Sep 49
0730 - 0900 Med Recheck for Specified Personnel "ONLY" Bldg 604
1215 - 1630 Personnel Test Btry #2 6894

4th Day 7 Sep 49
1215 - 1330 Interview Bldg 6753

ALL TIME NOT SCHEDULED ABOVE IS COMPANY COMMANDER'S TIME Thursday

HEADQUARTERS 3D ARMORED DIVISION
Fort Knox Kentucky

SPECIAL ORDERS) 1 September 1949
NUMBER 173)

EXTRACT

5. The fol WEM Rcts having been trfd this comd per auth indic are assgd (PIPELINE TNES) EDCMR as indic to Co C 13th Armd Inf Bn CCA EM for Basic Trng. MOS 1521 No OS av

		TOE & BR	DOB	DOE
Fac 1 SQ 114 Has 2326 ASU Canton Ohio 30 Aug 49 EDCMR 1 Sep 49				
1 Abel, James E Jr 20/20 N 15/15 A 111111 R-5 100 III	RA15921772	3 yrs Armd Cav	1931	30 Aug 49
30 William, Edward D 20/10 N 15/15 A 111111 R-6 85 IV	RA13831784	3 yrs CAC (U)	1931	30 Aug 49

BY COMMAND OF MAJOR GENERAL BROWN

OFFICIAL
B R WHITE
Capt FA
Actg Asst Adj Gen

ORVAL L. GREEN
Colonel GSC
Chief of Staff

DISTRIBUTION "X"

SPECIMEN OF AN ASSIGNMENT ORDER AND PROCESSING SCHEDULE.

(Names and service numbers of individuals are fictitious.)

ABBREVIATIONS

S/R = Service Record.
P/P = Partial Pay.
IB&A = Insurance, Bonds, and Allotments.
MVO = Motor Vehicle Operator.
TNES = Trainees.
TOE &BR = Term of Enlistment and Branch.
DOB = Date of Birth.
DOE = Date of Enlistment.

processing. At the interview, the qualification card is completed and is available for use throughout the remainder of the soldier's enlistment.

The procedure which has just been described, applies specifically to the recruit who has had no prior service. Another sizeable group of men pass through the 3d Armored Division only for reception processing and reassignment. These men, consist, in the main, of newly re-enlisted personnel with prior service in the Army, Air Force, or Marine Corps who do not require any basic training.* Each man is reported to the Department of the Army as available for reassignment as soon as his processing has been completed. The Department of the Army policy provides for the segregation of men with prior service from new recruits at training divisions. In order to carry out this policy, the 3d Armored Division utilizes a receiving battalion (the 45th Armored Medical Battalion), which has a capacity of approximately 5,000 men and can be operated with a comparatively small overhead.

In the case of newly enlisted personnel, the transition from reception processing to basic training is hardly noticeable. Each training company (or battalion) begins the basic training cycle on the Monday of the week following completion of reception processing. There is no movement to new areas, no change of officers and noncommissioned officers, and training, once started, need not be interrupted with personnel matters.

* Others who are assigned to the training divisions and who do not require basic training are emergency returnees from overseas assignment, men awaiting retirement, and those returned to the station for disciplinary action.

Conclusion

Reception processing is an integral part of the present personnel management program of the Army. It is essential because it ensures the efficient and accurate classification of all men, and establishes procedures for completion of the many administrative activities incident to beginning an enlistment in the Army.

Reception processing should be accomplished at places where specialists and facilities are available, to ensure the best results. The training divisions have the necessary specialists and facilities to do the job properly.

As long as reception processing takes place at training divisions, it is desirable that the recruits be assigned to their training companies immediately after arrival, so that confusion is minimized and early friendships and associations are continued.

Continuing emphasis must be placed on the considerate treatment of every recruit, to the end that he is stimulated to become a good soldier. That consideration must begin when the recruit arrives at the first military installation to which he is assigned.

The concept of using training divisions is excellent, if only a limited mobilization of manpower is required. Should full mobilization be necessary, the Army must open its reception centers to perform reception processing functions. The mission and aims of reception processing, however, are essentially the same as outlined in this article, regardless of the organization which performs the activity.

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Automatic Pilot

The United States Navy has developed the first successful automatic pilot for helicopters—a device that is expected to increase the utility of rotor wing aircraft. Routine operation of helicopters at night or during "instrument" weather heretofore has not been considered safe because of the difficulty of maintaining constant stability.

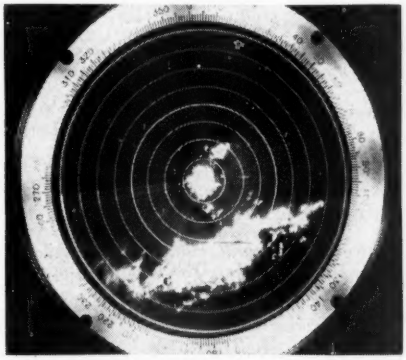
The new automatic pilot will make possible normal instrument flight, and will decrease pilot fatigue during long flights.

In tests recently conducted on two types of Navy helicopters the new devices demonstrated that the aircraft could be automatically controlled throughout their speed ranges in maneuvers and while hovering. Further tests in the program are being continued by the Navy Bureau of Aeronautics.

The first tests were made at the Naval Air Matériel Center, Philadelphia, Pennsylvania, in a Sikorsky *HO3S-1* single rotor helicopter with an automatic pilot developed by the Naval Aeronautical Instruments Laboratory at the Philadelphia center. For the second test, a Sperry auto pilot was installed in a Piasecki *XHJP-1* twin rotor helicopter.—*Army Navy Air Force Register.*

Radar Weather Stations

Specially designed radar sets with ranges of 200 to 250 miles, working in pairs, will aid weathermen in tracking storms and hurricanes. A pair of radar sets, one in Fort Monmouth, New Jersey, and the other in Cambridge, Massachusetts, are now busy tracking storms in experiments for the Army Signal Corps.



Storm picture on new type radar set.

Each station takes a picture of the storm from a different angle. Combined, these photographs give a truer picture of the contour, force, direction, and other highlights of the disturbance.—News release.

Because of the importance of the United Nations and the attention given it in today's news, the MILITARY REVIEW *is printing the United Nations' structure as a reference for our readers.—The Editor.*

UNITED NATIONS' STRUCTURE

The General Assembly

Members

Afghanistan	Denmark	Iraq	Poland
Argentina	Dominican Republic	Israel	Saudi Arabia
Australia	Ecuador	Lebanon	Sweden
Belgium	Egypt	Liberia	Syria
Bolivia	El Salvador	Luxembourg	Thailand
Brazil	Ethiopia	Mexico	Turkey
Burma	France	Netherlands	Ukraine
Byelorussia	Greece	New Zealand	Union of South Africa
Canada	Guatemala	Nicaragua	U.S.S.R.
Chile	Haiti	Norway	United Kingdom
China	Honduras	Pakistan	United States
Colombia	Iceland	Panama	Uruguay
Costa Rica	India	Paraguay	Venezuela
Cuba	Indonesia	Peru	Yemen
Czechoslovakia	Iran	Philippines	Yugoslavia

President

Nasrollah Entezam of Iran

Vice Presidents

Percy C. Spender, Australia; Dr. T. F. Tsiang, China; Robert Schuman, France; Andrei Y. Vishinsky, Soviet Union; Ernest Bevin, United Kingdom; Dean Acheson, United States and Dr. Cesar Gonzalez, Venezuela.

Committees

General (Steering)—Composed of fourteen members, namely, the President of the Assembly, the seven Vice Presidents and the committee chairmen listed below:

1. ***Political and Security.***
   Dr. Roberto Urdaneta Arbelaez, Colombia.
2. ***Economic and Financial.***
   Dr. Gustavo Gutierrez, Cuba.
3. ***Social, Humanitarian and Cultural.***
   Dr. G. J. Van Heuven Goedhart, Netherlands.
4. ***Trusteeship.***
   Prince Wan Waithayakon, Thailand.
5. ***Administrative and Budgetary.***
   The Maharaja Jam Sahab of Nawanagar, India.
6. ***Legal.***
   Dr. Vladimir Outrata, Czechoslovakia.

(These six committees are composed of representatives of all member nations.)

The Security Council

Members

Brazil (Until 1953)	France (Permanent)	Turkey (Until 1953)	United States (Permanent)
China (Permanent)	India (Until 1952)	U.S.S.R. (Permanent)	Yugoslavia (Until 1952)
Ecuador (Until 1952)	Netherlands (Until 1953)	United Kingdom (Permanent)	

Military Staff Committee

The Chiefs of Staff (or their representatives) of China, France, the Soviet Union, the United Kingdom, and the United States.

Atomic Energy Commission

The members of the Security Council and Canada.

Commission for Conventional Armaments

The members of the Security Council.

The Economic and Social Council

President
Dr. Hernan Santa Cruz, Chile

Members

Belgium (Until 1952)
Canada (Until 1953)
Chile (Until 1952)
China (Until 1952)
Czechoslovakia (Until 1953)
France (Until 1952)
India (Until 1952)
Iran (Until 1953)
Mexico (Until 1953)
Pakistan (Until 1953)
Peru (Until 1952)
Philippines (Until 1954)
Poland (Until 1954)
Sweden (Until 1954)
U.S.S.R. (Until 1954)
United Kingdom (Until 1954)
United States (Until 1953)
Uruguay (Until 1954)

The Trusteeship Council

President
Dr. Max Henriquez Urena of Dominican Republic

Members

Argentina (Until 1953)
*Australia
*Belgium
†China
Dominican Republic (Until 1954)
*France
Iraq (Until 1953)
*New Zealand
Thailand (Until 1954)
†U.S.S.R.
*United Kingdom
*United States

* Administering trust territories.
† Permanent member of the Security Council not administering trust territories.

The International Court of Justice

President
Jules Basdevant of France (Until 1955)

Dr. I. Fabela Alfara
Mexico (Until 1952)
Dr. A. Alvarez
Chile (Until 1955)
Dr. J. Azevedo
Brazil (Until 1955)
Dr. J. G. Guerrero
El Salvador (Until 1955)
G. H. Hackworth
US (Until 1952)
Dr. H. Klaestad
Norway (Until 1952)
Sergei B. Krylov
U.S.S.R. (Until 1952)
Sir Arnold D. McNair
UK (Until 1952)
Dr. Hsu Mo
China (Until 1958)
A. H. Badawi Pasha
Egypt (Until 1958)
John E. Read
Canada (Until 1958)
Dr. C. De Visscher
Belgium (Until 1952)
Dr. Bohdan Winiarski
Poland (Until 1958)
Dr. Milovan Zoricitch
Yugoslavia (Until 1958)

The Secretariat

Secretary General—Trygve Lie

Specialized Agencies

International Bank for Reconstruction and Development; International Civil Aviation Organization; International Labor Organization; International Monetary Fund; International Refugee Organization; International Telecommunication Union; United Nations Educational, Scientific and Cultural Organization; United Nations Food and Agriculture Organization; Universal Postal Union; and World Health Organization.

—*The New York Times.*

Rescue Service

Helicopters, liaison planes, amphibious planes, and specially equipped *B-17s* and *B-29s* have rescued or saved the lives of more than 500 men since the Korean fighting began.—*The New York Times.*

Army Helicopter Units

The Army is organizing transport companies equipped with helicopters for speedy movement of men, equipment, and supplies.

Each company will be equipped with 28 helicopters, 2 for command and reconnaissance purposes and the rest for transporting men and matériel.—*The New York Times.*

Automatic SOS

US Air Force planes in trouble soon will be able to call for help with a chain of automatic distress signals, thanks to an emergency keyer which has been developed by the Air Matériel Command.

When a pilot gets into difficulty and he has one of the new automatic devices, all he has to do is flip a key. Then, while he and his crew are preparing for the crash, the signaling device is tuning the airplane's radio transmitter to the emergency channel, transmitting the plane's call sign and a series of SOS signals to aid ground direction equipment to set up an approximate location.

This sequence keeps right on broadcasting until it is turned off or put out of commission.—Air Matériel Command.

X-Ray Inspection

The Army has developed an X-ray system for inspecting canned food without removing the cans from their cases.

The system, worked out by the Army Quartermaster Corps, may save more than $30,000 a month and can do a far better and faster inspection job than present inspection of each can by hand.—*The New York Times.*

Lowest Death Rate

The Defense Department's medical director stated recently that the death rate among the wounded in Korea was "by far the lowest in any similar campaign" in US history. This was attributed to air evacuation of the wounded, use of whole blood and plasma, and co-ordination of all military medical facilities.—*The New York Times.*

TV Aids Test Pilots

Television may soon see active duty with the US Air Force.

Engineers at Air Matériel Command Headquarters say that television cameras are slated to ride the skies in hazardous flight tests while the pilot operates remote controls from the safety of the ground.

The system is expected to enable engineers to get performance data never before obtainable, because there will be no human life at stake. The test pilot on the ground will be able to send a supersonic aircraft through screaming, gravity-defying maneuvers, testing the plane to its limit at critical speeds and stresses, all without risking his life.

Pilots will, however, have to be more skilled than ever to fly these aerial hot-rods from the ground.—Air Matériel Command.

Midget Rocket

A toy-size rocket motor, small enough to hold in one hand, is being used by Massachusetts Institute of Technology chemical engineers to develop fuels for full-scale rocket-powered missiles.

The micro-rocket uses only 2 pounds of fuel a minute as compared to the 12 tons used in a rocket the size of the German *V-2.*

The tests are part of a project conducted under the auspices of the US Navy Bureau of Ordnance and Office of Naval Research.—*The New York Times.*

Improved Radios

Radical redesigning of the walkie-talkie and handie-talkie radios has resulted in reduced weight and better reception. The new sets, which are frequency modulated, will permit users to "net" them with other new equipment in the FM family.

The improved walkie-talkie has about half the weight and bulk of its predecessor and a range up to 5 miles. It weighs about 20 pounds, is 16 inches high, 9 inches wide, and 3 inches deep. The walkie-talkie comes in three models for armor, artillery, and infantry.

The new handie-talkie, weighing 6½ pounds, is no smaller or lighter than its predecessor, but as a redesigned frequency modulated set it gives greatly improved performance. It has a range of about a mile over average rolling terrain, and will "net" with a large number of other radio sets, including the walkie-talkie.

Both the walkie-talkie and the handie-talkie are battery-operated units which receive and transmit.—Department of Defense release and photos.

Left, the improved handie-talkie. Right, the new walkie-talkie. Redesigning of the sets has reduced weight, improved talking clarity, and increased versatility.

Military Briefs

The Pacific Airlift exceeded the Berlin Airlift by 10,000 plane miles per day during September. "Operation Vittles" averaged about 242,000 plane miles per day while the Pacific Airlift averaged 252,000 plane miles per day.

A turbo supercharger has been developed which will enable piston-powered airliners to fly nonstop from Chicago to London with heavy payloads. Tests indicate a 32 percent take off boost and a 20 percent reduction in fuel consumption.

The Army has announced an increase of about 28 percent in the number of ROTC students for the 1950-51 school year.

President Truman has approved an immediate 500 million dollar expansion of the Army tank program, with the main emphasis on "heavies" capable of challenging Russia's mechanized monsters.

Marine pilots in Korea regularly strafe targets less than 200 feet ahead of friendly troops—and at altitudes as low as 50 feet.

High-Speed Propellers

The Curtiss-Wright Corporation has announced the development of a new series of propellers for planes flying at speeds up to 1,000 miles an hour.

At first, the new "props" will equip bombers, troop carriers, and transports cruising between 500-600 miles an hour. However, they are designed for twice those speeds.

The new propellers will be known as the Turboelectric series and will be used in conjunction with turbine engines developing 2,500 to 20,000 horsepower.

It is expected that they will increase present air speeds 100 to 150 miles an hour.—*The New York Times.*

Army Ranger Companies

Ranger companies will become integral parts of Army infantry divisions under plans announced by the Department of the Army calling for assignment of one Ranger company to each infantry division. These tough, highly mobile units will be used by division commanders for special missions of the general types performed by their predecessors. Ranger companies will be made up entirely of volunteers, and personnel for the first units will be picked on the basis of high mental and physical standards. All will be qualified as parachutists. Training will emphasize the use of foreign weapons and maps, demolitions and sabotage, guerrilla warfare, amphibious and airborne operations, and close combat.—News release.

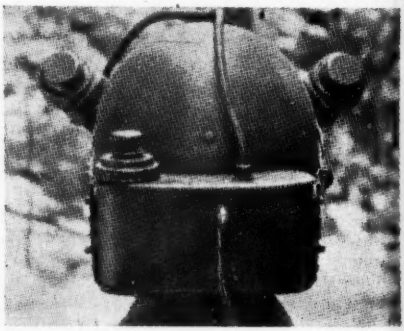
Feathering Device

Fewer crashes of airplanes at take off are promised with a new electric device for feathering the propellers automatically in case of an engine failure.

The special feature of the new device is that it works automatically within 2 seconds after engine failure.—*Science News Letter.*

Night-Seeing Devices

Infra-red night-seeing devices have been improved since the last War, and it seems that the invisible man—the American soldier equipped with his night-seeing devices—will play a large part in future wars.



Above, driver wearing infra-red binoculars. Below, rear view of the binoculars.

In addition to the sniperscope and the metascope, night-seeing binoculars have been developed which enable a driver to move forward in total darkness at a speed of 30 mph. The headlights of his vehicle are masked with infra-red filters, which permit the passage of light visible only to the driver and others similarly equipped.—*The Sphere,* Great Britain.

WESTERN GERMANY

West German Police Force

The West German Government is establishing a general staff and special "technical units" to run the 30,000-man quasi-federal police force authorized by the Western Powers.

The new force, will be under the administrative control of the 11 West German states, coming under federal control only during emergencies.

A group of 60 officers has started training at a police school organized by the Bonn government. These men are training as a state police group, but when the federal force begins its full-scale training program, they will be called on to form the cadre of the new organization.

All of the 60 officers served in the German police before they entered the *Wehrmacht* as officers in 1935.

When their 8-week course is completed, they will receive appointments as company commanders in the Federal Alert Police.

Final decision on their appointments rests with the Bonn government and the state minister-presidents.—*The New York Times.*

Above left, officer candidates taking entrance examinations for the new police school. Above right, a group of students marching from their classroom. Below left, the entrance to the school, a former German Army kaserne. Below right, state police students practicing on the pistol range.—*The New York Times* photos.

SPAIN

Armed Forces

Spain could put nearly 3 million men, or roughly 10 percent of her population, under arms in the event of a war, according to informed sources. She could put 50 to 60 combat divisions, numbering about 14,000 men each, in the field.

However, manpower is not a major problem. Spain lacks modern arms, including planes, tanks, and guns, as well as a good road and rail system.

The Government has announced a nation-wide highway improvement program, but it is estimated that it will require 5 years to complete the project.—*The New York Times.*

AFRICA

Defense Link

Leading African countries are planning a series of strategic roads and rail routes to girdle the continent. Their object is to "hitch" Africa in defense and economy to the Western world.

The United States is backing the scheme. Other countries participating are Great Britain, France, Belgium, Portugal, South Africa, and Southern Rhodesia.

The whole program is being dovetailed into the pattern of African defense, designed by Western military planners, which divides the continent roughly into four zones. These are North Africa, from Casablanca to Cairo; West Africa, from Dakar to Brazzaville; East Africa, from Khartoum to Nairobi; and Central and South Africa.—*The New York Times.*

SWITZERLAND

Defense Spending

Switzerland is spending 460 million Swiss francs (more than 115 million dollars) annually for its Army, and the Government will ask additional military credits of 1,400 million Swiss francs (350 million dollars) in the coming 5 years.—*The New York Times.*

FRANCE

New Bazooka

Exercises were held recently in Great Britain to test new antitank weapons.

Among the weapons tested was a new French bazooka, shown above.—*France-Illustration.*

Heavy Tank

The first all-French heavy tank to be produced since the War—a 50-ton model—was exhibited recently near Paris.

The new tank, powered by a 1,000-horsepower engine, is reported to have a high-velocity gun with 35 percent greater piercing power than the 90-mm gun of the *Centurion* and *General Patton* tanks.—*The New York Times.*

Defense Budget

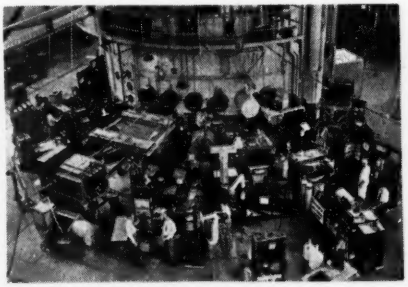
Prime Minister Rene Pleven recently stated that France's defense budget for 1951 totals 500 billion francs. This means an increase of 80 billion francs (18 percent) over the 1950 budget.

The Government is also considering a special program to organize and equip 15 new divisions within the next 3 years.—*Allgemeine Schweizerische Militärzeitschrift,* Switzerland.

CANADA

Atomic Pile

The most powerful of all known nuclear reactors is the heavy-water pile of the atomic energy project at Chalk River, Ontario, under the direction of the National Research Council of Canada.



Heavy-water pile at Chalk River, Ontario.

This atomic furnace, which has the highest influx of thermal neutrons ever recorded, offers unique facilities for the collection of fundamental data on atomic energy. How keenly these advantages are realized by scientists working at the Canadian project may be judged from the mass of experimental equipment literally "piled up" around the face of the reactor. Concentrated beams of neutrons, emerging from the various openings that may be seen on the reactor, are guided into these assemblies, which are aligned like spokes on a wheel on whch the reactor forms the hub.—*The Sphere*, Great Britain.

Naval Construction

Contracts totaling more than 43 million dollars have been awarded for the construction of 18 new naval ships. These orders are in addition to earlier contracts covering the construction of nine new vessels. The 18 new ships comprise the largest package of new construction ever ordered in peacetime for the Royal Canadian Navy.—*The Crowsnest*, Canada.

GREAT BRITAIN

Ejection Seat

An automatic ejection seat has been standardized for all Royal Air Force fighter and bomber jet aircraft. The whole sequence of ejection, parachute opening, and release from the seat, once initiated by the airman, is completely automatic.

Automatic ejection seat used by the RAF.

After jettisoning the canopy, the airman pulls a firing handle to eject him from the plane. A timing device, set in motion when the seat is ejected, releases the airman from the seat and opens the parachute.—*The Aeroplane*, Great Britain.

AUSTRALIA

Overseas Service

Under a recent announcement, all recruits for the regular Australian Army and volunteer citizen military forces will enlist for service anywhere, the same as Australian Navy and Air Force personnel.—*The New York Times.*

HUNGARY

Army Expansion

With the proceeds of her recent new "peace loan" that brought in more than a billion forint (100 million dollars), Hungary plans, within the next 8 months, to increase her military establishment from 7 to 12 divisions.

Plans call for the spending of 100 million forint monthly to build 17 military airfields and to provide equipment for the 5 new divisions. The divisions will be set up only "in cadre"—that is, weapons, transport, and uniforms will be provided, but manpower will be kept in reserve for an emergency.—*The New York Times.*

New Army Chief

Major General Istvan Bata has been appointed Chief of Staff of the Hungarian Army. The former Chief of Staff, General Laszlo Solyom, was rumored to have been arrested last year in a purge of senior Army officers.—*The New York Times.*

ITALY

Defense Bill

A long step toward preparing Italy to face another international conflict, if one should come, was taken by the Cabinet recently when it decided to create a corps of civil defense volunteers that is to be ready to go into action in case of an emergency. The new bill, if enacted into law, will authorize the recruiting of an unspecified number of volunteers to assist the police in the event of internal upheavals, or act as Army subsidiary services in the event of war.

The latter aspect of the new corps is particularly important, because the Italian Army was limited by the Peace Treaty to 250,000 men, including 70,000 *Carabinieri,* who are dedicated entirely to police duties.—*The New York Times.*

USSR

Military Zones

The Soviet Union has divided eastern Siberia into three military zones. The first zone lies between the Chukotsky Peninsula and the Lena River. The second zone includes the region north and east of Manchuria; and the third zone includes the area north of the Mongolian Republic. The Kurile and Sakhalin Islands region is included in the second zone.—*Allgemeine Schweizerische Militärzeitschrift,* Switzerland.

Military Construction

The Soviet Union has been engaged in extensive railroad, highway, and airfield construction to develop northern Asia into a powerful military base.

The Trans-Siberian Railway has been modernized and a double track line constructed over its entire length; a branch line has been built to Ulan Bator Khoto in Outer Mongolia some 250 miles beyond the Soviet frontier; and Soviet aid has been given to help the construction of many excellent highways in Manchuria.

In northern Siberia, where the construction of a transportation network requires excessive effort, an extensive system of airports has been established. This system includes the Chukotsky Peninsula and the Arctic coast; areas along the Lena, Indigirka, and Kolyma Rivers toward the west and south; and extends south to Magodan on the Sea of Okhotsk. In addition, the airports in the Lena Valley are connected with the Trans-Siberian Railway by a 500-mile highway.—*Allegemeine Schweizerische Militärzeitschrift,* Switzerland.

Air Transports

The Soviet Army has about 5,000 transport planes, capable of dropping some six divisions and their equipment behind enemy lines.—*Flying.*

Planning the Assault on Sicily

Digested by the MILITARY REVIEW from an article by Major O. D. Jackson in the "Australian Army Journal" February-April 1950.

IN JANUARY 1943, while the British Eighth Army was advancing from Tripoli and the British First Army was fighting in the mountains of Western Tunisia, Mr. Churchill and Mr. Roosevelt met at Casablanca. At this conference, the decision was made to invade Sicily as the first stage of the offensive against the "underbelly" of Axis Europe. And from that time, plans and preparations were pressed forward so that the operation could begin as soon as possible after the end of the campaign in North Africa.

Topography

Sicily is roughly triangular in shape, its northern and southern sides some 170 miles and its eastern side 120 miles long. It is only 2 miles from Italy at the Straits of Messina and about 90 miles from North Africa.

Broadly, the Island consists of a broken plateau with a higher northern edge of some 3,000 feet which drops abruptly to the sea, and a gentle slope to the south and southeast to heights averaging more than 1,000 feet near the south coast. In the northeast is the Mt. Etna volcano, and in the southeast corner is the Mt. Eblei tableland. Between these features lies the Catania alluvial plain.

Communications

Messina is the key point on the Island since all land communications to Italy converge there. From Messina, the main railway and road are confined to the narrow coastal strip and continue around the Island. In the west, there are two north-south railways, but throughout the interior, roads are poor and tortuous through the multiplicity of small hills and valleys. The hilltop positions of many towns aggravate these communication difficulties.

Axis Forces in Sicily

The Allied estimate of the Axis forces deployed in Sicily (which proved to be substantially correct) was two German armored divisions (the Hermann Göring and the Sicily), some five Italian field divisions, and six Italian coast defense divisions.

The main reserve forces were located inland from Gela in the southeastern portion of the Island but, owing to the poverty of communications, it was split into battle groups which would require considerable time to concentrate against any particular sector.

There were many suitable landing places on the long coast line, and beach defenses

were, in general, weak. It was apparent that the Italian coast defense screen was designed to delay the development of hostile operations while reliance was placed on armored counterattacks to push an invading force back into the sea. The Axis dispositions also indicated first, that considerable importance was laid on the protection of the groups of airfields near Catania and Licata and, second, that the west coast had not been forgotten as a likely assault area.

The Over-all Plan

The original plans for the invasion (Operation *Husky*) were not made by the commanders who were going to carry them out. Generals Eisenhower, Alexander, Montgomery, and Patton were all forced to concentrate their attention on the final phases of the operations in Tunisia until the second week in May, while the planning for *Husky* was being done by a special Allied planning staff in Algiers. The result was that when the outline plan was submitted to them, it did not meet with full approval.

The original intention had been to launch two simultaneous attacks, landing the US Seventh Army near Palermo and the British Eighth Army near Catania. This scheme was abandoned in favor of one concentrated attack on the southeast corner of the Island. The change was designed to facilitate the concentration of the Allied naval and air forces and also to ensure the early seizure of an adequate lodgment area, including ports and airfields, from which subsequent offensive operations could be mounted with greater security.

The over-all plan entailed:

1. Preparatory operations by the naval and air forces to neutralize the enemy naval forces and to gain air superiority.

2. Simultaneous seaborne assaults by the two task forces, assisted by airborne landings, to establish a firm lodgment area on the Island. This area was to include Siracusa, Caltagirone, and Licata, and from it operations could be launched to capture the ports of Augusta and Catania and the airfields in the Catania Plain. This phase of the plan is illustrated on Sketch Map 1.

3. The capture of these ports and airfields.

4. Finally, the reduction of the Island.

D-day was fixed as 10 July 1943, and the operations were to be supported by the full weight of the Allied air and naval forces in the Mediterranean.

The greatest risk was, unquestionably, on the administrative side. Licata, when captured, was incapable of handling all the requirements of the US Seventh Army, and it was apparent that both Siracusa and Catania were necessary for the full-scale maintenance of the two armies. Thus, until these ports could be captured and put in working order, after their heavy battering from the air, maintenance would have to be across the open beaches. It was calculated that the US Seventh Army might have to maintain itself across the beaches for up to 1 month until the port of Catania was opened.

The Cover Plan

When the original plan had been made, the cover plan had been put into effect. It aimed at persuading the Axis command that the eastern Mediterranean was to be the area of assault and not the central or western areas. The movement of considerable German forces into Greece and the Aegean indicated that the initial cover plan was successful.

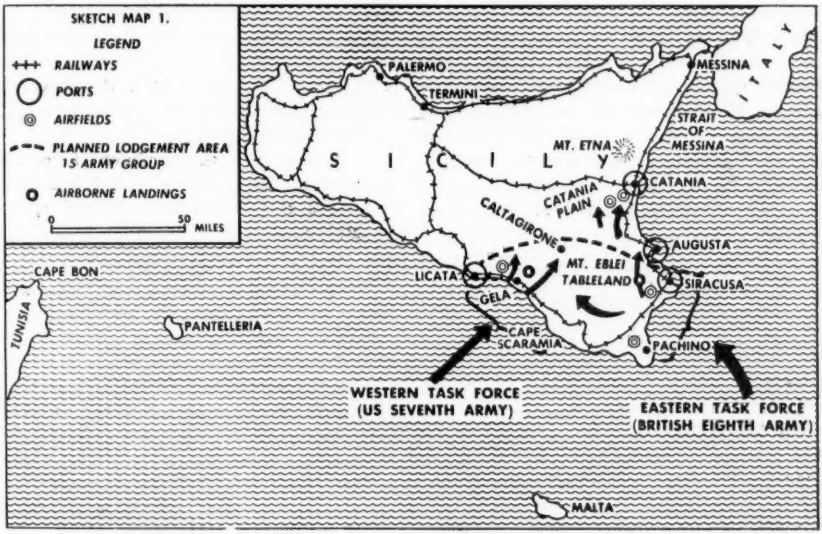
Once Tunisia had been captured, and the assembly of ships and landing craft had commenced, it must have become obvious to the Axis forces that an assault on Sardinia, Sicily, or southern Italy was intended. To maintain this uncertainty as to the exact area of assault, the air

attacks were kept widespread until 7 days before D-day.

The final stage of the cover plan was designed to indicate that Catania was to be the assault area. Heavy air attacks were to be made on this area on D minus 1 and a dummy parachute landing made the following night.

fact, the detailed planning was done by Task Force Headquarters and XIII Corps in Cairo, by the X Corps in Tripoli, and by XXX Corps in Tunisia.

The formations which it was planned to use in the assault were even more widely dispersed. The 1st Canadian Division was in England and was to join the assault forces direct from English ports. The 51st Division was to embark from Tunisia, while the 5th and 50th Divisions together with the 231st Infantry Brigade were to embark from Egypt and Palestine. In addition, the reserve formation, X Corps, was near Tripoli and the 1st Airborne Division was based at Kairouan in north-east Tunisia.



Eighth Army Planning Problems

As already mentioned, over-all planning was made difficult by commitments in Tunisia. The same factor made the Eighth Army planning equally difficult. The Eastern Task Force planning headquarters was in Cairo (the mounting of the Eastern Task Force was primarily the responsibility of GHQ Middle East) and from early April, members of the Army staff were sent there as it became possible to release them from Tunisia. It was not until 16 May that the headquarters, as a whole, could be released. In

This dispersion, in addition to causing difficulties in the co-ordination of detailed planning, also meant that a complex system of timing and control would be required to assemble the ships and craft carrying the assault forces.

Two other factors added further complications. First, the estimates of the number of ships and craft available to lift the assault forces varied continually and made it impossible to become firm on detailed plans for tactical grouping and loading. Second, although the navy and army planning staffs at Task Force level were able to work together in the same building in Cairo, the air force commander was in Malta where he was engaged in active air operations. It was not until the British Eighth Army Headquarters moved to Malta, 6 days before the assault began, that the complete air picture was made available.

The Eighth Army Plan

The Army plan is illustrated on Sketch Map 2. The main assault was to be launched at 0245 on 10 July with XIII Corps on the right and XXX Corps on the left.

On the right, the XIII Corps assault was designed to establish an initial beachhead in the Cassibile—Avola area including a firm footing on the plateau which commanded the coast road between Cassibile and Noto. The 5th Division was then to advance on Siracusa. The Corps attack was to be facilitated by two special operations. The 1st Air Landing Brigade group was to land west of Siracusa beginning at 2210 on 9 July to capture the Grande bridge over the Anapo River, the coastal batteries north of the River, and the seaplane base. A commando brigade was to land some 35 minutes before XIII Corps to capture the main coastal battery at Cape Murro Di Porco.

On the left, the XXX Corps initial beachhead was to be established on the line Noto—Rosolini—Spaccaforno. The 231st Infantry Brigade was to protect the right flank and make contact with XIII Corps while the 51st Division prepared to relieve the 50th Division (XIII Corps) at Avola.

In the second phase, XIII Corps, on the right, was to secure bridgeheads over the Simeto River and capture Catania using both the 5th Division and 50th Division. On the left, XXX Corps was to take over the initial XIII Corps beachhead and advance inland to the high ground Regusa—Palazzolo where the 1st Canadian Division was to make contact with the American forces. The main XXX Corps axis of advance was then to be developed northwest towards Vizzini.

A Royal Navy bombardment force was to be available to assist the initial landings and the subsequent advance up the coastal sector.

The Air Plan

Up to D minus 7, air operations were closely related to the general cover plan and covered a wide area from Greece and the Aegean Islands to Corsica and Sardinia. On D minus 7, attention was to be concentrated generally on Sicily, although other targets also were to be attacked.

From D minus 7 to D-day, the primary tasks of all available Allied aircraft were to destroy the Axis air forces in Sicily and southern Italy on the ground or in the air, to neutralize or destroy Axis air bases, and to disrupt communications in Sicily and between Sicily and Italy.

On D-day, some 4,000 aircraft were to support the two task forces, their main tasks being:

1. Fighter protection for the convoys and support of the airborne forces.
2. Strategical air force to isolate the battlefield by attempting to prevent the movement of reserves to the assault area and to continue the attacks on Axis air bases.
3. Tactical air force to provide direct support to the assault forces.

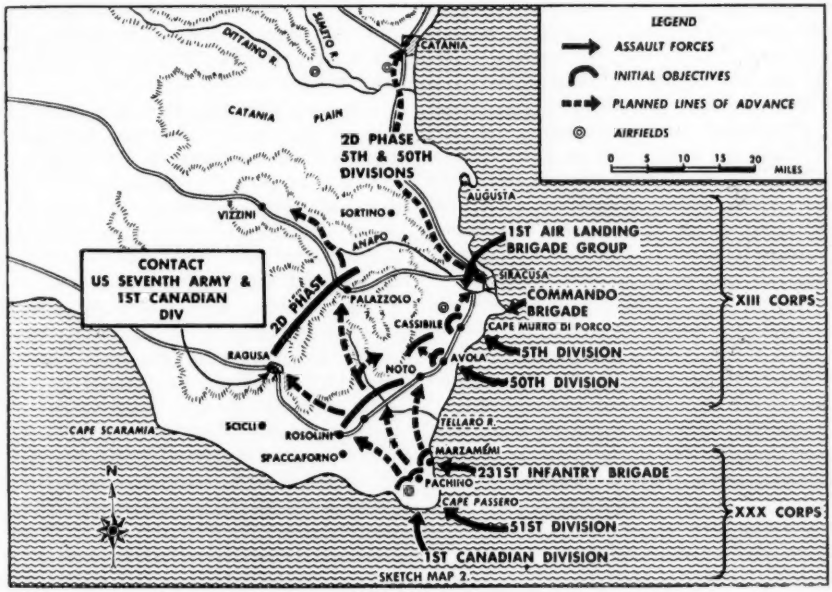
Final Preparations

During the final phase of preparations, large-scale rehearsals were carried out. The XIII Corps made practice landings

in the Gulf of Akaba and the Gulf of Suez. The XXX Corps carried out similar landings in northwest Africa, while the 1st Canadian Division completed its training and rehearsals in the United Kingdom. Many lessons were learned, particularly with reference to signal communications, fire support, and administrative organization of the beaches.

The commander in chief's personal message was read to all troops and, one by one, the convoys sailed from their embarkation ports for the rendezvous area south of Malta, where they assembled during 9 July. In the afternoon, the force of the wind began to increase causing heavy seas which made many of the troops seasick and threatened to make the assault operations a hazardous undertaking. By 1700, a gale was blowing. At this late stage, postponement was not feasible as it would have caused more disruption than the adverse weather conditions. It was decided to continue with the plan.

In the early evening, the airborne forces



took off from their Tunisian bases and, during the night, the seaborne forces reached the transport areas from which the assault craft were to be launched. The wind had now begun to slacken and it was hoped that landing conditions would be reasonably favorable.

The Assault

The dropping of a brigade of the 1st Airborne Division did not go as planned due to the high wind, bad navigation, and inexperience on the part of the glider pilots who cast off too soon and too far out to sea. Of the 137 gliders, only 9 percent landed on the correct zones, 50 percent landed on the Island and got their teams

down intact although up to 40 miles from their destination, the remainder dropped into the sea up to 7 miles off shore.

However, a small force of some 70 men secured the bridge south of Siracusa and held it until mid-afternoon the following day (10 July). They had just been overrun when the situation was restored by the arrival of the leading elements of XIII Corps who were about 8 hours overdue.

The seaborne assault was more successful. The first waves achieved tactical surprise and caused great confusion among the Italian defenses which did not offer any form of organized resistance. By first light on 10 July, successful landings had been made on all the beaches.

Resistance in the XXX Corps sector was negligible and, by evening, the assault troops had secured the peninsula. Large numbers of prisoners had been taken and the Pachino airfield was ready for use.

The XIII Corps had a little more difficulty but, by the same evening, the 5th Division had relieved the gliderborne troops at the Grande bridge and had taken Siracusa where the port was found to be undamaged. On the other flank, the 50th Division had secured the southern end of the plateau northwest of Noto.

Thus, at the end of D-day, all the British Eighth Army initial objectives had been taken, casualties were light, and the landing of troops and stores had continued throughout the day in spite of a heavy surf. No German forces had been encountered and the Italian opposition had been practically nonexistant, the troops of the coastal divisions preferring to surrender rather than fight.

The US Seventh Army had not been so fortunate. Soon after landing, the assault troops had been counterattacked by German armored forces and some stiff fighting took place about Gela. The situation had, however, been restored with the assistance of close-range support from ships of the United States Navy.

Securing the Beachhead

During the second day of operations (11 July), the XIII Corps was directed on Augusta while the XXX Corps took over the XIII Corps beachhead and advanced on the main axis Palazzolo—Vizzini. Also on this day, contact was made between the 1st Canadian Division and the Americans near Ragusa.

The following day, the XIII Corps advanced on Augusta. German tank counterattacks were beaten off with the assistance of co-operating naval and air forces and the port was secured during the night. By the end of the same day, the XXX Corps was established on the line Sortini—Palazzolo—Ragusa—Scicli.

Thus, by the end of 12 July, after 3 days and 3 nights, the British Eighth Army was firmly in possession of the southeast corner of Sicily, including the ports of Siracusa and Augusta and the airfields near Pachino and Cassibile. Although the discharge of craft and ships at Siracusa and over the beaches was going satisfactorily, no troop-carrying transport had yet been landed. Thus, the troops had to march long distances in the hot sun to take advantage of the ineffectual opposition offered by the Axis forces. The Italians continued to give only token resistance while the German formations had not been able to concentrate or coordinate their operations.

Comments on the Assault

The reasons for the immediate success of this assault operation may be summarized as follows:

1. The Axis forces had failed to defend the beaches. This was due to a combination of three factors, namely, low Italian morale, lack of troops, and failure to appreciate the British Eighth Army's intention with even reasonable accuracy.

2. The absence of any major Axis counterattacks. This was, no doubt, due mainly to the effects of difficult terrain, plus the

heavy air attacks which helped to isolate the assault area and make the early concentration of Axis reserves virtually impossible.

3. The effect of the Allied cover plan which apparently confused the Axis command and resulted in considerable uncertainly as to where the assault would be launched.

4. Almost complete Allied air and naval supremacy which reduced shipping losses and prevented interference with the assault and subsequent exploitation.

5. The intimate co-operation between the navy, army, and air forces during and after the assault. This was made possible by sound planning, good signal communications, and the functioning of the three service headquarters as one team at Malta.

6. The high morale, physical fitness, and fighting qualities of the assault troops which were due, in no small degree, to the complete faith of all ranks in their commander in chief and the intense and realistic training carried out prior to the assault.

Among the many lessons derived from these operations, the following are probably the most important:

1. In spite of the short approach from the ports of embarkation to the assault area, tactical surprise was achieved.

2. Naval bombardment was proved effective.

3. The landing ship, tank (LST), was an effective and rapid means of getting tanks, vehicles, guns, and other heavy equipment ashore.

Canada's Role in the North Atlantic Treaty

7-549

Digested by the MILITARY REVIEW from an article by Colonel E. R. Rivers-Macpherson in "The Army Quarterly" (Great Britain) July 1950.

CANADA'S defense aims have been set out by her Defense Minister as follows:

1. To provide the force necessary to defend Canada against any sudden attack likely to be directed against her in the near future.

2. To provide the operational and administrative staffs, equipment, training personnel, and reserve organization which would be capable of expansion as rapidly as necessary to meet any need.

3. To work out with other free nations plans for joint defense based on self-help and mutual aid as part of a combined effort to preserve peace and restrain aggression.

The foregoing is a clear and logical exposition of Canada's attitude to the North Atlantic Treaty. It might now be opportune to consider some of the implications of the latter.

Nuclear Weapons

Data regarding the potency and limitations of the atom bomb are based on the eight American bombs "fissioned" so far. The American press informs us that their latest "Booster-Bomb" (a normal atom bomb setting off by chain-reaction "heavy hydrogen") is 1,000 times more powerful than their Eniwetok model. The latter model is now being produced on an industrial basis at a greatly increased rate. But even so, the complicated processes employed to produce atom bombs are infinitely slower than the more conventional methods employed in the production of high-explosive bombs. Thus, random bombing of hostile targets with atomic weapons would be highly wasteful.

The atom-bombing of large cities would kill a large number of inhabitants, which might, to some extent, depress morale,

but would not necessarily strike a mortal blow. Again, to bomb widely deployed hostile forces on sea, land, and air would be prodigal in atomic weapons, and the results might not justify such expenditure. The bombing of key industrial plants (if they have not gone underground), as well as oil wells and oil reserves, would certainly be attractive but the most attractive targets appear to be the atom bomb plants themselves, and these targets will be sought out most diligently by the belligerents.

Bombing may be carried out by either piloted planes or electronically controlled missiles. We now know definitely that Russia has exploded an atomic bomb, and that she will be in operational possession of atomic weapons sooner or later. It would be wise to assume this when formulating our strategic policy.

Command of the seas is a *sine qua non* if we are to develop successfully our basic strategy, but owing to Russia's geographical position, sea power alone is not enough. Her territory covers one-sixth of the earth's surface, and she possesses the strategic value of interior lines, with an almost inaccessible coast line. Thus, we are compelled to develop strategic air power so as to gain quickly the initiative if attacked suddenly.

However, we have to face an entirely new concept of war with the development of nuclear, electronics, and biological (NEB) weapons. Their potency sets a tempo which must be maintained at all costs. In the next war, the aggressor will hit suddenly with all his NEB weapons, probably after a "softening-up" process from within by their "fifth columns." The riposte must follow instantly if we are to regain the initiative. It would appear logical to assume that the first 500 hours of hostilities may witness a titanic struggle for NEB supremacy, with both sides grappling for a "knockout" blow. If no definite results are obtained by either side, then we shall arrive at the end of Phase I; a nuclear stalemate. It is a possibility that the latter stage may be expedited by the expenditure of nuclear weapons exceeding supply. Therefore, the dropping of every bomb will have to be carefully plotted beforehand to ensure the maximum destructive results. We cannot afford any "near-misses." In short, the magnitude of the nuclear weapon, combined with its complicated and difficult production, may tend to circumscribe its widely extended use.

Canada's Role in Phase I

With the challenge to the Atlantic Treaty nations now coming from the Asiatic mainland, it is now a matter for speculation as to where the first blow might fall. In short, what target, or targets, will pay quickly the highest dividends? Let us appreciate this point from an aggressor's angle. The well-known aphorism of Napoleon, that the policy of a state is its geography, was never better exemplified than in Canada today: the latter has been termed the "shield" of the North American continent. This area contains vast undeveloped mineral deposits, including uranium.

Canada's formidable array of natural wealth and power, supported by nuclear weapons across the border, assumes a new significance. A glance at the polar map graphically illustrates how the American and Asiatic continents face each other in two far-flung semicircles. About 4 hours flying time at the speed of sound separates the main axes of these two land masses, now brought in close proximity by modern science. This accounts for the fact that both the United States and Canada now look over the frozen north as well as east and west. The 60th Parallel, the old accepted limit to northern progress, has been liquidated.

It is common knowledge that the "Atomic Quadrilateral" in the United States stretches as far west as Hanford,

Washington, south to Los Alamos, New Mexico, east through Oak Ridge, Tennessee, to Brookhaven, New York, with its base facing the "Canadian Shield." Interposed between the former and the latter lies most of the industrial wealth of the United States and Canada. That this area will be one of the primary objectives of any aggressor cannot be denied. Attacks can, of course, come from the east and west, but if from the latter, they must be made over the Pacific Ocean area, carrying a number of hazards, such as floating radar stations. The eastern route is not only longer but more vulnerable to European detection and interception, thus militating against the element of surprise, the all-important factor. Thus, NEB attacks utilizing the polar route (the shortest) claim our serious attention, and if this hypothesis is based on sound premises, then on Canada will fall one of the first impacts in the next global conflict.

The organization of the Canadian Armed Forces is well known and their over-all strategy in the case of Phase I appears, from the writer's point of view, to be as follows:

1. *Detection*—to frustrate the element of surprise.

2. *Interception*—to destroy the attackers.

3. *Preparedness*—to be ready to resist sea and air invasion.

Detection would fall on the Trans-Canadian radar screen, the Yukon radio system, and the Canadian Rangers, the latter being an organized militia. It is appreciated that this demands constant vigilance of all concerned, combined with a highly organized network to disseminate information quickly.

Interception is naturally the duty of the Royal Canadian Air Force which should be well-equipped and armed with the most modern matériel available.

Preparedness falls on the Royal Canadian Navy and the Canadian Army which would be ready to deploy their respective task forces as and where required.

Thus, in Phase I, Canada's primary role is detection; and so frustrate the element of surprise, the latter being of paramount importance to ensure success.

Russia's Policy

As was stated, the first 500 hours will determine who has obtained mastery in Phase I. It may well be the aggressors would prefer to seek a speedy decision in this phase as a prolonged war would not be in their interest as regards matériel, both from maintenance and supply angles.

Russia's foreign policy has been set out in a recent book by F. O. Miksche and E. Combaux as follows:

(a) In Europe, her aim is to detach Leningrad; to tighten her hold on the Baltic, Germany, Poland, and the Danube Basin, and so achieve a security zone which will push her frontier as far west of Moscow as possible, and finally to "detach" the Black Sea by means of a Balkan policy which will settle the Straits question to her advantage.
(b) In Asia, her object is to create vast defense zones in the Near, Middle, and Far East which will act as buffers to the important Caucasian Provinces, to the main parts of East Siberia, and to the Pacific coast line.

Now the all-important question arises. What are our own national aims in the event of a Russian attack on the Western Democracies? Would we be forced to seek a Carthaginian peace?

A moderate and rational opinion has been circulated in the United States by the *Atlantic Monthly* (July 1949) which states, in the event of a shooting war, that:

(a) The monopoly of the Communist Party upon the governmental structure of Russia and her satellites must be broken, and the false appeal of Communist dogma refuted.
(b) All territories and all nations that Russia has enslaved or occupied must be freed and Russia must return to her traditional frontiers.

This would not be so simple as stated, but we might be able to exploit the Ukrainian separatist movement, as well as the defection of the Don Cossacks to Communist rule, to our advantage. When we remember that there are only 6 million members of the Communist Party in

Russia, in a mixed population of 200 million, we are emboldened to visualize the possibility of driving a political, moral, and psychological wedge between the government and the people. This might be achieved by clever propaganda.

We must not forget what the Nürnberg records revealed. Hundreds of thousands of Soviet soldiers surrendered with little fighting, and scores of thousands, including Soviet General Vlasov, deserted to the German side in the first months of the War. But the Nazis instead of acting as liberators came as conquerors, and thus kindled the flame of hate which later devoured Germany. They transformed the invasion of Russia into a brutal war against the Soviet people.

If Phase II eventuates, despite our control of the sea and air, we should probably have to face a long drawn out guerrilla war. The Soviet forces could not be expelled from their European and Asiatic redoubts by air power alone, even if we resorted to the horror of destroying the nations we professed to be liberating. Thus, while strategic air power can win the "cold war," and can help us in gaining the initial advantage in a shooting war, it is not the final solution in a situation in which Russia would use the enslaved populations to screen her armies from the air terror. We were faced with this very problem in the last War, but we had no atom bombs at that time. Concerted attacks on the Russian redoubts will have to be made by *all* arms, and, at the same time, we will have to "put over" to the 194 million non-Communist Russians that we come as liberators, and not as "Conquisadores," to free them from totalitarian tyranny. Then, undoubtedly, the final stages would be the "scorched earth" policy so well carried out by the retreating Soviet Army in 1941.

Canada's Role in Phase II

If Phase I results in a stalemate, then Canada must be prepared to embark on her time-honored role of close co-operation with her Allies in an overseas theater (or theaters) on sea, land, and in the air, and to maintain these forces at adequate fighting level.

It is possible that the aggressor's land and sea forces would synchronize their attacks with the all-out NEB air offensive, and it is also possible that certain terrain in Eurpoe and Asia will be temporarily overrun. A lot will depend on how far the Atlantic Treaty has been implemented by the stock-piling of arms and equipment in Europe. General Omar Bradley has stated that this Treaty is as important to American security as the atom bomb. If this be so, then munitions of war must be built up in Europe, if the Treaty is to become a practical instrument of defense.

From the beginning of hostilities, Canada's Armed Forces (apart from their role in Phase I) would be mobilized for a role similar to that which they performed in World War II. In that War, the Royal Canadian Navy assumed protection for the North Atlantic lanes, as well as ranging the oceans from the Arctic to the Pacific. Canada is the fourth largest maritime nation in the world today, and this demands a highly trained and well-equipped navy. Fast antisubmarine escort vessels are being built to tackle the serious problem of the fast submarine traveling at 24 knots, or more, submerged. The Canadian Army sent five divisions (plus corps and army troops as well as the ancillary services) overseas in the last War, no mean achievement considering Canada's population. As each division requires nearly 50,000 shipping tons to transport its arms and equipment alone, the resources of the Royal Canadian Navy again will be taxed severely in the next war. Airborne troops and paratroopers will be integrated in any future expeditionary force. The Royal Canadian Air Force, whose strength reached more than 200,000 men in the last War, and more

than 48 operational squadrons overseas, will certainly maintain that fine record, if they are ever called upon to do so again.

Thus, we can assume that in broad outline, the pattern of World War II will again be followed in Phase II, if that phase is ever reached. There will be, of course, a number of changes due to technical improvements in ships, aircraft, tanks, and most weapons. Possibly fewer combat men will be needed to operate the improved weapons, but fire power will be even greater. Other readjustments of major political strategy may be found necessary due to the effects of atomic bombing. It is, therefore, assumed that due consideration is now being given to defensive measures against NEB attacks.

The logistic side, on the other hand, appears to demand greater manpower, and the old ratio of "12 non-combat men behind the man with the gun" even may be exceeded. This is necessary owing to the increase in tempo all around, and also to the large increase in the number of items required by the combat troops. The latter impinges on the ever crucial problem of manpower, and the eternal conflict which has always raged over the adjustment of that delicate balance between the claims of the fighting services and that of industry.

Let us review briefly some of these outstanding problems which not only confront Canada, but all her Allies as well, and which will, in no small measure, influence our future basic strategy:

1. Biological and air defense measures.
2. The optimum balance of manpower between the fighting services and industry.
3. Adequacy of our basic strategic materials.
4. Adequacy of our food supply.
5. Economic mobilization of our basic industries.

Unless there are reasonably practical solutions to the foregoing problems, it only appears logical to suggest that the high strategists would encourage the idea to put in an all-out effort in Phase I so as to achieve decisive results as soon as possible. The world is suffering from war neurosis of an acute nature, and the malady may reach a crisis if the next war is unduly prolonged.

Our present atomic supremacy is the only guarantor of peace, as was recently stated by Mr. Winston Churchill. We are, indeed, tempted to ask "How long will the tensioned peace last?" The odds appear to suggest that should we be forced to defend our liberties again, then we must seek a quick and decisive victory, utilizing all the resources at our disposal.

Conclusion

A most serious and impressive thought emerges from the welter of future NEB warfare, and it is this:

He who hits *fast*, and hits *hard*, will certainly attain a momentum which will not be easy to halt. Mr. Winston Churchill in his recent book writes of *the mass of maneuver* in regard to the French Army in 1940 having no strategic reserve. I suggest, with deep respect to Mr. Churchill, that we need a new term to express adequately the new conception of war, as a result of the birth of NEB warfare and guided missiles. I would, therefore, suggest the simple expression: *the initiative of maneuver*. The latter would imply:

1. A state of national preparedness for any emergency. This includes not only the armed forces, but civilians and industry as well.

2. A state of awareness, both moral and physical, to meet any emergency.

3. Being in a position to employ, or deploy, the mass of maneuver, so as to gain and retain the initiative. (Geographical considerations will play an important part.)

A recent classic example of *the initiative of maneuver* being applied successfully is illustrated by the North African

campaign under the command of General (now Field Marshal) Sir Bernard L. Montgomery, in which the latter never lost *the initiative of maneuver*, and never lost a battle. Other examples are found in the Marshall Plan, the North Atlantic Treaty, the Berlin Airlift, and so on.

A tragic example of the loss of *the initiative of maneuver* is exemplified in the loss of Hong Kong and Singapore in 1941-1942. As a matter of logical survey, it would not be extravagant to claim that we lost these key points in 1922, when we terminated our alliance with Japan and, in so doing, uncovered our Pacific defenses.

Democratic nations can never be the first to employ NEB weapons; a new technique must be evolved. We must, if suddenly attacked by an aggressor, be so organized that we shall be able to deploy our countermeasures in a matter of hours —and not many at that—to halt the momentum of the attack and, in turn, to pass over to the initiative. Undoubtedly, the stock-piling of the sinews of war in Western Europe would not only act as a deterrent to possible aggressors, but would also prove to be a wonderful stimulus to the Western Democracies themselves.

Canada has a vital part to play in the preservation of world peace. She is discharging this role with growing confidence and success in the United Nations Security Council, and is also valiantly attaining *the initiative of maneuver* in her strategic role not only to assist in the defense of the North American continent, but to defend democracy as well.

The American people together with other free peoples seek a new era in world affairs. We seek a world where all men may live in peace and freedom, with steadily improving living conditions, under governments of their own free choice.

For ourselves, we seek no territory or domination over others. We are determined to maintain our democratic institutions so that Americans now and in the future can enjoy personal liberty, economic opportunity, and political equality.

President Harry S. Truman

The Battle for the Straits

8-478

Translated and digested by the MILITARY REVIEW from an article by Lieutenant Colonel F. O. Miksche in "Forces Aériennes Françaises" (France) June 1950.

WHAT are the principal factors which, in case of world conflict, would exercise a decisive influence on the strategy of the Soviet High Command? The Soviet strategists would not have an easy task for, though the strength of the USSR is based on its enormous reservoir of men, the strength of the Western Powers is based on its greater industrial capacity. The question, therefore, is to know how the Russian General Staff will be able to compensate for its inferior technological position through its crushing superiority in manpower.

The USSR, whose territory extends from the Baltic to the Pacific, is the greatest land power of our time. It possesses neither a high-seas fleet nor, probably, an adequate air force. Thus, it lacks the geographical and technical bases necessary for the control of the seas and, probably, the air. It would be necessary for it to envisage the necessity of conquering territories which, alone, would permit it to conduct strategy on a world scale.

It would be the Soviet Army on which the task would fall to open the way for the Soviet naval and air forces. Once the coasts of the ocean were occupied by forces advancing wholly by land, the Eastern offensive would have reached the limits of its possibilities.

Western Powers' Strategy

On the other hand, the strategy of the Western Powers would be entirely different. The naval and air forces would prepare the way for the ground forces, by means of transportation, landings, and other operations supported by strategic bombing. This essential difference, which is revealed by a comparison of the strategic problems of the East and the West, results from their technical and geographical characteristics: geographic isolation and technical lag in the case of the East, and technical superiority, hence control of the seas and air, in the case of the West.

Soviet Strategy

A simple glance at a map enables one to obtain some idea as to the probable strategy of the Soviet Union. The first phase of the operation, inevitably, would be a battle for the straits, so that the Soviet Army would be able to force a passage to the open seas for the Russian squadrons in the Baltic and the Black Seas.

Concurrently, plans would be made for the conquest of the Danish Peninsula to clear the North Sea passage for Russian war vessels through the Skagerrak and Kattegat. The Kiel Canal, which connects the Baltic with the North Sea, would, doubtless, play an important role in the operation. Another preliminary necessity of the Atlantic strategy of the Soviets would be to obtain possession of naval bases, principally on the coasts of Norway, Germany, Holland, Belgium, and France.

Soviet Naval Strength

In spite of their release from isolation, the Soviet fleets could never become serious rivals of Anglo-American naval power. Only the operations of snorkel submarines over the principal sea lanes could constitute a serious threat. Nevertheless, the experiences of two world wars prove that it would be difficult for submarines, alone, to obtain decisive results. On the seas and in the air, time would work against the East. The output of Soviet industry, from the standpoint of both quantity and quality, would never suffice to permit the waging of a successful war against the Allies.

Nevertheless, could not the strategic inferiority of the Soviet fleet be compensated for by means of operations different from those mentioned above? Access to the different straits is only one aspect of the problem. The blockade of certain other strategic points would give the USSR an opportunity to improve her position on the seas. This is particularly true in the case of the Mediterranean.

Key Positions

It is quite natural for the Soviet strategists automatically to turn their attention toward Gibraltar and Suez. The enormous advantages for the Soviet Union resulting from the possession of these two key positions could well be the following:

1. The conquest of Gibraltar and Suez, resulting from the fall of Western Europe and the Middle East, would represent the only possibility for the Soviets, deprived of the control of the sea and depending solely on manpower, to extend their strategy to three of the five continents; Europe, Asia, and Africa.

2. With access to the Mediterranean barred to the Western Powers, all their bases on this sea, such as Italy, Greece, Malta, Sicily, Crete, and Crypus, would be cut off suddenly from the rest of the world. The Allied defenses then would be limited to the coast of North Africa, back of which, to a depth of 1,500 miles, extends the Sahara Desert. Consequently, the assembly point for an Allied counteroperation against the Soviet Union would be drawn back behind the Sahara to an imaginary line such as Dakar—Djibouti. However, as in World War II, North Africa could not be the springboard for the liberation of Europe unless both Gibraltar and Suez were controlled and defended by the Western Powers.

3. The barring of the Mediterranean to the Allied fleets automatically would give the Soviet Navy superiority in those waters. Allied vessels would be obliged to make use of the long route around Africa, thereby reducing their effectiveness and permitting the Soviet Navy to attain a condition of equality.

The military geography of the Mediterranean includes two distinct theaters of operation: the eastern and the western, separated from one another by the Italian Peninsula and Sicily. The western theater, with the countries of Western Europe, Italy, Spain, and North Africa, forms a strategic ensemble belonging to the Atlantic group. On the other hand, the eastern theater comprises the Balkan Peninsula, Turkey, and Egypt, as well as Persia and the other Middle East countries. It must be apparent, therefore, that Gibraltar in the west and Suez in the east are key positions to both the Allies and the Soviet Union.

A Mediterranean Pact

As long as the Western Powers hold these two points, they will be able to prevent the Soviet Union from developing a world strategy. However great may be the successes of the Soviets in Western Europe, in the Balkans, the Middle East or elsewhere, as long as they do not control the Mediterranean, final victory will escape them just as it escaped Hitler, in spite of the initial successes of his armies.

From this point of view, the true importance of the Atlantic Pact is evident. Its principal object is the defense of Gibralter by means of a deep beachhead whose defense line begins at the Atlantic coast, follows the course of the Rhine, and is anchored in the Alps as far as the coast of the Adriatic.

The Atlantic Pact, however, solves only the defense of Gibraltar. One cannot regard our system as complete unless we also protect the other entrance to the Mediterranean—Suez—by means of a similar, deep beachhead. This should form the basis of a Mediterranean Pact which, together with the Atlantic Pact, each complementing the other, would form a political and strategic ensemble.

6-1871

War on the Eastern Front

Digested by the MILITARY REVIEW from an article by Lieutenant D. J. Goodspeed in the "Canadian Army Journal" (Canada) March 1950.

BY THE beginning of 1944, the German cause was lost beyond hope of recovery. A survey of the forces engaged on the Eastern front is enough to explain the hopelessness of the German situation. Only 200 weakened and decimated German divisions were left to face the Russian onslaught. To this may be added some 50 satellite divisions, composed for the most part of poorly trained, badly officered units which had little desire for fighting. On the Communist side, however, there were some 500 infantry, armored, and cavalry divisions, plus 30 artillery divisions.

It is important to bear these figures in mind when assessing the results of the fighting in the closing months of the War, for the Russian offensives which appear so spectacular when traced on the map do not by any means indicate that the offensive *per se* has gained an inherent advantage over the defensive. Indeed, as we shall see, there is much to indictate that the dictum of Clausewitz still holds good and that now as formerly "the defensive is the stronger form of war." It is interesting to note, too, that although by the end of 1944 the Russians had five times as many divisions as the Western Allies they engaged only twice as many German divisions.

The last German offensive on the Eastern front was aimed against Kursk and was launched by Von Kluge in July 1943. When this offensive failed, the Russians counterattacked. The history of the rest of the War in the East is the story of repeated Russian attacks against ever weakening German forces.

The Communist technique relied heavily upon artillery preparation. Massed Russian guns would attempt to blast a hole in the German lines, then wave after wave of Russian infantry would assault on a narrow front. These attacks were usually pressed home regardless of loss and, as a result, they were frequently successful. Once a break-through had been achieved the Russian armor would pour through the gap, fan out, and attempt an encirclement. These encirlements, however, were seldom completed. The remarkable fighting quality of the German troops, combined with the delaying power which modern weapons bestow even on small forces, usually enabled the bulk of the threatened Nazi units to withdraw from the closing trap.

When we consider these last battles on the Eastern front, it is important that we view them objectively if we are to derive full value from the lessons which they have to teach. War is so momentous an affair, so vital to a nation, and so imponderable in its consequences that it is always difficult to analyze recent military operations without emotion. Yet emotion is the deadly and eternal enemy of analysis which, to be of value, must be coldly objective, logical, and impersonal. The military historian who glosses over or excuses his own nation's failure is contributing, in an appreciable degree, to the defeats which his own nation will suffer in future wars. Conversely, it is cheaper to learn from the past than to suffer in the future. Because of this, a study of the fighting on the Eastern front during 1944 and 1945 is probably of more value to the military student than is a study of any other phase of the War.

German Glory Ends

During these last months, the German Army was always on the defensive. It was always subject to attack by forces which outnumbered it in a ratio of two and three to one. It had no hope of ultimate

victory. The days of its glory were ended. Yet it fought on with desperate courage and with a cold professional skill, and it inflicted altogether disproportionate casualties upon the Soviet Army. Military thinkers in the West should be vitally interested in how this was done.

During the winter months of 1944, the Russians made little progress, but they managed to build up reserves and supplies for a major attack in March. This offensive was launched near Tarnopol by two army groups under the command of Marshals Zhukov and Konev, but a German panzer army under General Hube offered stiff resistance. Hube's tanks, exploiting their mobility to the full, delayed the Russian advance and badly mauled the attacking formations. Weight of numbers, however, steadily forced the Germans to retire.

The major Russian effort of 1944 began with a tremendous cannonade on 22 June. The Soviet Army, employing four army groups, attacked all along a 200-mile stretch of the central front. Six penetrations of the German line were achieved and four of these resulted in partially successful envelopments. The Russians were sufficiently strong in numbers to attempt double envelopments in each case; an operation which generally requires a considerable superiority of force. At Vitebsk, Orsha, Mogilev, and Bobruisk, portions of defending German formations were trapped and annihilated. In most instances, the Germans fought on bitterly even after they were surrounded, and this fact probably accounts for the extremely high number of fatalities in the German casualty list.

By the middle of October, the four army groups of the Soviet Army had advanced nearly 300 miles and had inflicted half a million casualties on the Germans. During this offensive, the Germans lost 160,000 prisoners to the Russians. Exact Russian casualties are not known, but it is certain that, while undoubtedly less than the Nazis claimed, the Russian loss was still much higher than the German.

While the battle was progressing favorably for the Russians in the center, a simultaneous campaign in the south was bringing equally good results. By late August, the retreating German forces had been forced back to northeast Rumania where two groups of Russian armies succeeded in encircling a large enemy concentration near Chisinau. Most of the troops within this trap were Rumanians, but the remnants of two German armies were also caught. All possibility of fighting their way out was lost to the Germans when Rumania sued for peace and declared war on the Axis. The Rumanian troops immediately laid down their arms and the Germans were shortly forced to do the same.

As the Soviet forces pressed on into Hungary in October, a vast encirclement was attempted by the two army groups commanded by Marshals Malinowvsky and Petrov. The arms of the pincers had succeeded in closing to within 45 miles when a German panzer army rushed through the gap in a brilliant counterattack. The Soviet forces were hurled back in confusion and much damage was inflicted upon them, but the Germans were too weak to exploit fully their success. The brief flare of victory died down and flickered out, and once more the Germans began their long retreat to the West.

Only on the Northern front were the German armies able to hold their own. In Lithuania, a Russian attack launched with 30 divisions on 24 August was stopped with heavy loss. From then until the end of the year, the Communists attacked continually in the north, employing eight field armies composed of more than 70 infantry divisions plus armor and artillery. Skillful German defensive tactics broke all of these assaults and the Russian casualties were so high that for the first time in the War the Communist High

Command began to worry seriously about a manpower shortage. Meanwhile, the Germans gave ground slowly and in their own time, shortening their lines with each retirement.

Soviet Army on Vistula

Yet, in spite of the excellent handling of their troops, the Germans were too thin on the ground to resist for long. By the end of the autumn of 1944, Soviet forces stood on the Vistula and pressed against the borders of East Prussia. Two Russian army groups, operating on exterior lines, now attempted to crash through the German defenses and to carry, for the first time, the war to German soil. First, one army group attacked from the east, making good initial headway. When, however, the Germans discovered that the threat from the southern Russian force was not developing, they immediately switched the bulk of their troops against the Communist forces attacking from the east and repulsed them.

But by now, there was no reserve anywhere behind the German front. The plains of Poland were overrun rapidly by Zhukov and Konev with a further loss

of German troops in a pocket at Lodz. Marshal Zhukov's army group began its attack south of Warsaw on 12 January 1945, and, since the Soviets were now plentifully supplied with American trucks and with Russian tanks, Zhukov advanced 130 miles in 12 days. The Oder River was reached by 14 February and the Soviet forces paused here for 74 days to build up for the final assault on Berlin.

What little remained of the German armor was now sent to Hungary with the dual mission of recapturing Budapest and of defending Vienna. The German panzers attacked on 18 January and for nearly a month they succeeded in pushing back the Russian forces. This brilliant but pathetic *riposte* came to an end on 16 February when a shortage of gasoline, together with an irreplaceable wastage in tanks and men, combined to bring the German drive to a halt. An indication of the odds against which the Nazis were now contending is given by the fact that in Pomerania, during this period, the Germans had only 70 tanks to pit against the Russians' 1,600.

The final Russian assault on Berlin was launched on 16 April. For this attack Zhukov had amassed 22,000 guns (about double the number which the Allies employed on the whole of the Western front), 5,000 planes, and 4,000 tanks. Yet, in spite of this overwhelming superiority, the Soviet advance averaged only 9 miles a day and Russian casualties were extremely high. General Keitel, who commanded this last stand of the German Army, was given one final strategic opportunity which he was swift in seizing. The Western Allies, believing that Hitler had determined to make his death fight in a bastion of the Bavarian Alps, halted their center on the Elbe while they continued to advance with their wings to the north and south of Berlin. On learning this, Keitel promptly switched his forces from the Western to the Eastern front and the Russian capture of Berlin was made even more expensive than it would otherwise have been.

Yet the end was only a matter of time. When the last resisting German soldiers were killed or captured in Berlin on 2 May, the War was over.

An analysis of the last year and a half of fighting on the Eastern front falls naturally into two categories, the strategical and the tactical. At first, it might appear as though, with the odds so heavily weighed against one side, no strategic lessons of value could be gained from the 1944 and 1945 campaigns, but this is not so. It is true that the major Russian mistakes sprang from faulty tactics, but the strategy of the Soviet Army was also responsible for some of the terrible losses which it incurred.

In 1944, the Russian attacks developed successively all along the front in a series of "taps" designed to probe German weaknesses with a view to exploiting them. This was essentially the same strategy which Foch employed in 1918 with a similar success. But when the Russians launched their offensive against East Prussia, they repeated exactly the same strategical blunder which had brought disaster upon their armies in 1914 at Tannenburg and the Masurian Lakes. Instead of attacking simultaneously with both their eastern and their southern army groups, they allowed the Germans time and space to maneuver by attacking from one direction only. Thus the Germans were able to concentrate against the single Russian attack, defeat it, and then turn with their whole strength on the other Russian army group. Only the German weakness prevented a serious Russian defeat.

Soviets Relied on Mass

Russian generalship in the final months of the War had improved far beyond the fumbling inefficiency which marked it in 1941 but, even at its best, it was unimaginative, somewhat inflexible, and inclined to

rely for success upon mass rather than upon maneuver or surprise. Marshal Zhukov was probably the best general that Russia produced during the War. He was responsible for the victory before Moscow in 1941, for the encirclement of Stalingrad, and for the capture of Berlin. His chief assets appear to have been an iron will, a sound but unspectacular strategic sense, and an unshakable determination. In these respects, Zhukov bears a striking likeness to Marshal Foch whose record in World War I reveals almost exactly the same strengths and limitations.

From their war records, the marshals of the Soviet Union may generally be regarded as hard and competent soldiers who, unlike the majority of Soviet corps and divisional commanders, are not afraid of accepting responsibility or of acting on their own initiative. Marshal Budenny and Marshal Timoshenko appear to be exceptions to this rule, but their blunders soon brought about their removal from active command.

Both the strategy and the tactics of the Soviet Army at the end of the War were based upon the knowledge that Russian manpower and production could overwhelm the diminishing German resources, but it is important to note that, by 1945, the leaders of the Soviet Union were becoming alarmed over the manpower situation. Estimates of Russian casualties are little better than guesswork, but there are few informed sources which would place them at less than 10 million. Obviously, this rate of wastage was a drain which not even Russia could bear indefinitely.

Russian tactics and organization in World War II were very different from those of either the Western Allies or of Germany. Probably the most remarkable difference was the Soviet emphasis upon artillery. The Red infantry division had more than double the number of guns which were furnished to an equivalent formation in a Western army, and some of the Russian artillery concentration at the end of the War surpassed, by far, anything which was seen on the Western front. In accordance with Russian tactical doctrine, 25 percent of all field artillery was normally employed in direct fire positions in the infantry lines.

Yet, although the Russian artillery was far more numerous than that of the West, there were certain factors which limited its effectiveness. Its artillery fire, in the recent War, was not renowned either for its accuracy or for its flexibility. The ability to mass fires and switch concentrations rapidly was beyond the Soviet artillery, both because of limitations in training and because the Soviet guns were less accurate. Soviet artillery, generally, had shorter effective ranges than Western artillery and lower rates of fire. The practice of employing large numbers of guns in forward localities effected considerable economy in ammunition expenditure, since the number of direct hits per round obviously is much higher when firing is done over open sights. But to counteract this, the number of guns lost through enemy action was large. The Russians were prepared to accept this loss.

Huge Casualty List

Indeed, the acceptance of loss distinguished all Soviet military doctrine. The Soviet infantry division commonly fought on a much narrower front than a Western division. Frontal assaults by massed infantry were persistent far beyond the point that Western doctrine would consider economical. British, French, and American commanders in World War I frequently have been criticized bitterly for their frontal assault tactics. The death toll of the Somme, of Passchendaele, and of the Champagne and Artois offensives provides every justification for such criticism. Yet there was no Western commander in 1914-1918 who would have dreamed of incurring casualties compar-

able to those of the Soviet Army in 1941-1945.

Even if it were true (which it is not) that Russian manpower was inexhaustible, such tactics have inherent disadvantages. The relatively low standard of most Soviet infantry divisions was due largely to the fact that the infantry battalions in each division were continually being drained by casualties, and replenished with green soldiers. Another practical objection to such ruthlessness in tactics is that the Soviet division almost invariably had to fight far below strength. Because of the enormous Russian losses, the Soviet Army's effective strength generally was no greater than that of the American Army, in spite of the fact that Russia has a population of 200 million as compared to the 150 million of the United States.

In some ways, however, the Russian infantryman was far ahead of his Western counterpart. The art of camouflage was highly developed by the Soviet Army and the standard reached was of an excellence which the Western Allies did not even approach. The Soviet soldier, too, was far better at field engineering than either the German or the Western soldier. When it came to digging in or building field fortifications from natural resources, the Soviet Army did the job better and more quickly than any other.

The Soviet experience in forest fighting, in winter warfare, and in muddy or swampy country should also be taken into consideration. One factor which contributed, in no small measure, to the Soviet Army's superiority in these specialized types of warfare was its employment of horse cavalry. Mounted Cossack troops were able to remain mobile in terrain which completely immobilized German mechanized units.

In so far as the Soviet armor was concerned, all authorities are agreed that the *Josef Stalin III* heavy tank and the *T-34* medium tank were better than any other armored fighting vehicle which appeared during the War. Russian tanks, although lacking the refinements common in Western pattern vehicles, had better armor, better cross-country performance, and more hitting power. Russian tank tactics, however, suffered from the rudimentary state of the intercommunication system in the Soviet armored regiment as well as from a tactical doctrine which employed massed armor on narrow fronts. The German antitank weapons usually took a heavy toll of Russian tanks for these reasons.

In so far as air power is concerned, the doctrine favored by both the Russians and the Germans differed from that of the Western Allies. Believing that the primary purpose of an air force was to assist military operations, the Nazis and the Communists both emphasized the tactical support role of the airplane rather than its strategical bombing role. The German panzer division, for instance, had 12 reconnaissance planes and 32 dive-bombers as part of its Table of Organization and Equipment, while the tactical air force of the Soviet Union was part of the Soviet Army and was much larger than the strategical air force. Soviet Army planes, fitted with antitank weapons, proved efficient tank killers and were also used extensively for counterbattery work. It is more than probable that the independence of Western air power resulted in many missed opportunities in the recent War, one of the most flagrant examples being the failure to exploit fully the German retreat from El Alamein. Peacetime training in army-air co-operation might remedy this to some extent, but the logical solution seems to be the one adopted by the Germans and the Russians. When viewed from the standpoint of military efficiency rather than from that of service pride, it would seem just as reasonable to have the field gun

belong to a separate service as the tactical airplane; both are supporting arms.

Limited Use of Paratroops

One rather surprising thing which the War on the Eastern front demonstrated was the remarkably limited use made of paratroops. The Germans used them to some extent in 1941, but from then on the Nazi paratroop battalions normally fought as infantry. The Soviet Army, although it had orginally been the foremost power in developing paratroop tactics and actually had more than 100,000 trained paratroopers at the outbreak of the War, used them almost exclusively to assist partisan operations behind the German lines.

One final comment needs to be made on Russian tactics during World War II. It has been said frequently that the Soviet Army is capable of living off the country to a much greater extent than any European force could hope to do. There is, apparently, a basis of truth for this contention, although it is probable that there has been some confusion between living off the country and a mere propensity for indiscriminate looting. But to argue from this (as has been done) that the Soviet Army is less vulnerable to a threat to its communications than any other army will not bear close analysis. The Soviet infantryman's ability to endure hardship and to get along on short rations is, undoubtedly, an asset not to be ignored. The considerable amount of horse-drawn transport used by the Communists may ease to some extent the problem of gasoline supply. These advantages, however, are offset by the tremendous weight of the artillery ammunition required to feed the Soviet Army's guns, while the swarms of tanks which the Russians employ in their offensives will require at least as much gasoline, maintenance, and replacement as would equivalent tank forces anywhere. The Soviet Army, in short, has its line of communications—a line of communications which is just as intricate, important, and vulnerable as that of any other nation.

We are, perhaps, still too near in time to appreciate either the full significance or the full tragedy of World War II. The brave new world of which free men dreamed did not materialize when the last sounds of firing died down in the ruins of Berlin. Yet, some good still may be gleaned from these barren battles of the Eastern front. If the events of the years between 1941 and 1945 are subjected to a much more minute scrutiny and a much more careful analysis than has here been possible, they may be found to contain strategical and tactical concepts which, if they cannot ensure us of peace, will yet ensure us of victory.

Armored Support in Forest Country

Digested by the MILITARY REVIEW from an article in the "Australian Army Journal" February-April 1950.

This account of armor operating in support of infantry in the Reichswald Forest in Germany was written by the commander of a battalion of Churchill tanks.—The Editor.

THE operations in the Reichswald reminded us once again that close co-operation of tanks and infantry in thickly wooded country is not entirely different from operations undertaken in more

open country. We found that the general rules and principles of co-operation still held good, though they had to be adapted to suit the conditions imposed by limited visibility and restricted maneuver. These two factors, besides imposing many restrictions on the fighting troops, made it extremely difficult for the commander to influence the battle once he had launched his troops into the attack.

Training

As in all operations, training by the tanks and infantry should take place on ground similar to that over which the battle is to be fought. The battalion had approximately 1 week's training in the forest before the operations in the Reichswald, but when possible I think that at least 2 weeks should be allowed.

Types of Forest

Our forest fighting experience has taught us that, whereas it is practicable for tanks to support infantry in forests where the trees are more than 12 feet high and 3 feet apart, it is not practicable in young plantations. There, tanks are blinded and consequently unable to keep in touch with the infantry; neither can they defend themselves against bazooka teams.

Co-operation with Infantry

Since the vision of tanks in forest country is limited, we made it a rule that infantry should precede the tanks in all advances, whether by day or night, and no matter whether the axis of advance lay down the tracks or through the forest itself. The infantry moved about 30 yards in front of the tanks and so avoided danger from falling trees. At night, in order to ensure that contact was retained between tanks and infantry, movement was by bounds and masked lighting was used. The infantry carried some easily seen mark on their backs, and tank and infantry commanders kept close together. On one occasion, the infantry, carrying white mugs strapped to their backs, advanced yards at a time and signaled with red flashlights to the tanks behind them each time they halted. At night, troop commanders often found it difficult to recognize the company which they were supporting and it was suggested that each company should wear some distinguishing mark that would render it easily recognizable. Flank protection was provided by the infantry by day and by night.

Tank Formations

Knowing that the use of tanks in forest country is an excellent morale factor, we did our utmost to maintain the element of surprise for as long as possible. Formations and tactics were varied frequently, but visual contact with the infantry was never broken. In daylight and in open woodland, tanks within a platoon were often able to deploy, but at night and in close forest they nearly always moved in line ahead, although there were occasions when companies successfully advanced through the forest at night with four platoons abreast. Commanders were governed by no hard and fast rules and at different times one company used successfully the following three formations in the attack: first, four platoons abreast, with tanks advancing through the trees in line ahead; second, two platoons abreast, one deployed on either side of a road used as a center line with the other two platoons following 10 minutes later in the same formation, but on a parallel road; third, two platoons abreast, deployed, using two roads as center lines, with one platoon following close behind and the other in reserve.

Although it is possible for armor to deploy into and move through a forest, we found that it imposed a severe strain on tanks and for this reason, when con-

tact with the enemy was unlikely, tanks moved along roads with an infantry screen in front and on the flanks.

Artillery

Self-propelled antitank artillery moved well forward and was able to get into position immediately after an objective had been gained. Forward observation officers who accompanied companies were most welcome; it is hoped that they will always be provided.

Night Halts

When an objective was reached at night, the tanks were withdrawn at least 20 yards from the foremost positions and placed where they could be protected adequately by the infantry. The ideal was for tanks to be rallied by companies near the headquarters of the infantry battalion which they were supporting. We did not rely entirely on the infantry for protection; the tanks had their own guards, armed with Sten guns. No movement of any kind was allowed within company areas, and anyone walking about there ran the risk of being shot without being challenged. In the Reichswald, a German did succeed in penetrating a company area and shot a tank commander who challenged him from his turret.

Firing

The consumption of machine-gun ammunition was much in excess of all other types. During night attacks in the forest, guns were loaded with belts cleared of tracer ammunition and fired into the tops of trees above the heads of the advancing infantry. It was calculated that the effect would be alarming to any enemy who might be in the neighborhood. During an attack, it was found worth while to maintain machine-gun fire into the forest even when the enemy was no longer visible because hits were obtained against unseen targets as they withdrew. High explosive ammunition from the main armament normally was fired only in clearings, for fear of inflicting casualties on our own infantry.

The success of our Army—and the success of our Nation—is a reflection of the sum of our individual successes. I am confident that an Army of strong individuals, held together by a sound discipline based on respect for personal initiative and rights and dignity of the individual, will never fail this Nation in time of need. I am equally confident that a nation of strong individuals—which holds that its national objectives exist only to give life and meaning to individual objectives—will always produce that type of Army.

General J. Lawton Collins

The Sea Aspect of a Future War

Digested by the MILITARY REVIEW from an article by Captain P. D. H. R. Pelly, in "The Journal of the Royal United Service Institution" (Great Britain) May 1950.

ANY attempt to deal simply with a subject carries with it a temptation to dismiss complicated factors as not affecting the fundamental issues. Nevertheless, present-day discussions of naval strategy in a future war seem to have become so clouded, by a failure to keep the basic principles clearly in the foreground, that an accusation of oversimplification is a risk which should be readily accepted.

Our naval strategy can be stated as the control of sea communications in order that Great Britain can be maintained as a main or advanced base, from which armies and air forces can operate, or be carried to and supported in distant theaters of war. It is intended, in this article, to discuss this simple statement, the truth of which cannot be altered by debates on the value of strategic bombing or any other fascinating but equally irrevelent problem.

Two facts underlie the foundation of this definition:

1. Great Britain is an island which depends on imports, not only for her ability to wage war, but for her very existence both in peace and war.

2. The volume of imports which Great Britain requires in war or peace is such that they can be carried only by merchant ships.

The first fact is undisputable and does not require statistical support. The second, though equally true as far as the most fanciful prophet can see, is beginning to be doubted by those who apply the particular to the general.

Supply Problems

The remarkable achievements of the modern airplane demand that any hint that the days of the merchant ships are numbered should not be dismissed lightly but shown carefully to be quite untrue. The epic of the Berlin Airlift, and many airborne supply operations of World War II, make it necessary to have a practical understanding of the capabilities of the airplane as a cargo carrier. To be viewed in its proper perspective, the Berlin Airlift must be seen as the last short stage of a long journey. The planes taking part were doing the same work as army trucks plying between the most advanced supply dumps and the front line. The airplane has the advantage over the truck in being able to fly over the sea, yet it in no way detracts from the brilliant conception and execution of the Berlin Airlift to admit the practical truth that it would have been far beyond the capacity of the Allied air forces to carry that amount of supplies across the Atlantic, even in a limited operation of this kind.

Admiral Chester W. Nimitz in his report on the Pacific campaign wrote: "The 100,000 long tons of cargo which 44 ships transport from San Francisco to Australia monthly would require for the same purpose 10,000 four-engine *C-87* airplanes manned by 120,000 highly trained personnel, plus 89 sea-going tankers to provide gasoline along the route and at the far end of the run."

If these illuminating figures are expanded in the task of supplying Great Britain in time of war, not even the greatest protagonist of the air can suppose that her existence, quite apart from her ability to fight, can depend on anything but her merchant fleet. Our enemies have always had a painfully clear understanding of this fact and, in each of the last two Wars, have come perilously close to defeating us by cutting off our seaborne supplies. The winner of the

Battle of the Atlantic was, in both cases, inevitably the winner of the War. Had Germany won this battle, the Allied war machine would have stopped completely in a matter of weeks. However, by winning it ourselves, our communications were assured and our superior potential allowed to gather sufficient weight to achieve the final victory. It is foolish and dangerous to suppose that any future enemy will fail to see clearly this quickest and surest road to victory.

It may be argued that atomic warfare has diminished the importance of Great Britain's sea communications, since she could be brought to her knees by air attack. This argument needs careful consideration because Great Britain's survival, in the early stages of a future war, probably will depend on the correct allocation of her limited resources in peacetime to the defense of her sea communications and the air defense of Great Britain. The problem is almost as difficult to solve as deciding whether the chicken or the egg came first. If, by air attack, Great Britain is rendered useless as a main or advanced base, what benefit could she derive from having control of her sea communications? Conversely, what good would it do, by stock-piling or other temporary expedients, to develop a first-class air defense, which could only hope to postpone defeat by a few months, if the enemy could deny her the supplies essential to her survival?

Adequate Defense Required

The logical answer is that Great Britain must be able to defend herself from air attack and guarantee the safe delivery of her required supplies. Unfortunately, Great Britain's resources are so limited that the logical answer is beyond her means, and she is forced to enter the unenviable field of priorities. It may help to arrive at the right solution to compare the problem to that of a boxer, whose guard might be taken as air defense and whose heart as sea communications. If his guard is weak, he may expect a blow on the jaw that will knock him down. It may put him out for the full count, but he will always have the chance of regaining his feet within 10 seconds and renewing the fight. If, on the other hand, his heart stops, he is finished almost instantly beyond hope of recovery, and there is no need for his opponent to bother about penetrating his guard. There can be no conflicting priorities in the boxer's mind; if his heart is weak, he must keep out of the ring, however accomplished he may be in the art of self-defense. If, like the boxer, Great Britain gives priority to the defense of the Merchant Navy, she may indeed find that because of air attacks she will become ineffective as a main or advanced base. By retaining, however, the ability to build up the offensive strength of the Allies elsewhere, Great Britain need not accept defeat nor give up her faith in final victory. Should Great Britain weaken her control of the seas to provide an impenetrable air defense, she could live in a fool's paradise for as long as her stocks lasted, and then face complete and inevitable defeat.

Lessons of History

In debating the problem, Great Britain must not neglect the lessons of history. In 1940, when Great Britain's Army had been stripped of its equipment and her fighter strength all but exhausted, and when great men were talking of continuing the War from the Dominions, she was further from final defeat than she was 2 years later when the control of her Atlantic routes seemed to be slipping from her grasp. This truth was perpetuated at Casablanca, when Great Britain's supreme war leaders ordered that the defeat of the U-boat was to be a first charge upon the Allies' resources. This

decision was made at a time when the immediate military position, both on land and in the air, gave grounds for optimistic faith in final victory.

It would be flying in the face of history to assume the truth of an unproved theory that Great Britain can be defeated by atomic attack, if such an assumption leads her to neglect the protection of what she and her enemies know to be her most vulnerable point.

It cannot, therefore, be called an oversimplification to say that no plan for waging a future war—offensive or defensive—which is not founded firmly upon the effective control of Great Britain's sea communications can succeed. In the initial defensive stages of a war, there could be no such thing as the air defense of Great Britain if there were no fuel for the aircraft nor food for the ravenously hungry pilots. Factories could not start equipping the expanding army without raw material. Great Britain's situation would be equally disastrous if her sea lines were cut later in a war, when her strength had been built up to its maximum potential. Defeat might be postponed until stocks were exhausted when it would at once become unavoidable. Offensive action becomes impossible if merchant ships cannot sail in reasonable safety.

Naval Strategy

Everything, in fact, that she does or plans to do in peace or war ultimately depends on the Merchant Navy. Naval strategy is the protection of that Merchant Navy.

The British Navy alone is not able to protect the Merchant Navy. The British Army has always had to play its part by garrisoning maritime bases. Within the last 15 years, the Royal Air Force has had to assume a growing responsibility which now almost equals that of the Navy—carrier-borne aircraft should only undertake what is, geographically, beyond the capacity of shore-based aircraft. The soldier or the airman, planning for the next war, must start, therefore, by meeting his obligation towards the security of Great Britain's communications. When that is assured, beyond all reasonable doubt, he can turn his mind to devising the best course of offensive action. It is not until this stage has been reached that the bids for strategic bomber forces or mammoth tanks can be considered. There is no room for inter-service rivalry, for letters to *The London Times* about bombs or battleships, or for argument about the fair division of the defense budget between the three services until it is certain that the merchant ship can sail in reasonable safety. All stragety, in fact, must be based on maritime strategy, which is the safety of the merchant ship.

Close Co-operation Needed

It is when this truth is accepted that the difficulties start. The problem is to decide the size and nature of the forces required to protect Great Britain's sea communications against all forms of attack open to the potential enemy. These forces must be kept as small as possible to allow the maximum effort to be devoted to offensive action. The fewer Great Britain's potential enemies, the simpler the problem, which is, therefore, at its simplest at the present time. The enemy's forces must be assessed, and from them his most likely forms of attack must be deduced. If he has surface raiders, we must provide sufficient sea and air forces to ensure their swift destruction. If he has submarines, no effort must be spared to gain their mastery. The Air Force must not stint its forces for the sea battle and the Navy must not cling to traditional vessels outmoded in modern warfare. Real co-operation is needed, based on a clear acceptance of

the truth that Great Britain's existence depends on the safety of the merchant ship. Such co-operation comes easiest to the Navy and hardest perhaps to the Air Force. The Navy's sole task, since the beginning of Great Britain's island history, has been the security of sea communications. The Air Force, born within the last 30 years, has only gradually become an essential partner in the Navy's tasks and has, simultaneously, been charged with the individual role of direct offensive action against the enemy. Great Britain's Air Forces have, therefore, the unenviable complications of conflicting priorities which, if the basic truth of this article is accepted, should not conflict but which, unless human nature is ignored, must be taken into account.

Maritime warfare, from the point of view of air forces, is dull work in which concrete results are rare. It is expecting a lot of a gallant young pilot for him to realize that his long and arduous patrol, unrelieved by a single sighting, has, by his mere presence in the area, so restricted the movement of a U-boat that a convoy of 50 or more merchant ships has passed in safety. Such work can hold little attraction in contrast with the cut and thrust of an offensive raid on enemy territory, where the satisfaction of the bursting bomb in the target area is ample reward for the dangers which must be faced and overcome. Yet without the safe and timely arrival of the convoy, there can be no offensive action by air forces.

Preliminaries are always irksome whatever the task. If a room is to be painted, the preparation of the surface and the application of the undercoat are apt to be hurried to gratify the understandable impatience to see the final shiny enamel covering a multitude of sins. It is the same in warfare. To the Royal Air Force, the security of Great Britain's sea communications can only be an irksome preliminary to the more gratifying task of offensive action. But the skimping of preliminaries, however understandable, cannot be considered when the safety of the country is at stake.

It is the purpose of this article to state, without qualification, that, in planning for a future war, the security of Great Britain's sea communications is the first charge on the resources of the three fighting services in exactly the same way as it was in 1942.

None of us knows when war will come again. Maybe in the next generation; maybe next year; maybe never. The initiative lies with an enemy. I do not wish to be an alarmist. My point is that, through intensive application now we may be able to fend off a national emergency later; and in any case we will not be caught off base in our technical preparation if the tragic disaster of another world war should decend upon us. We must continually hope for the best, and prepare for the worst. No other estimate of the situation is militarily sound.

Lieutenant General M. S. Eddy

The End of an Unjust Legend

Translated and digested by the MILITARY REVIEW from an article in "Illustration" (France) 13 May 1950.

TEN years have gone by since May 1940 which was marked by the German offensive across Holland, Belgium, and the break-through of the French Army defense positions. That month was a prelude to a rapid and total German victory.

The memory of those events is softened by the Allied victories of 1944 and 1945. However, it must not be forgotten that France paid dearly for that initial military disaster, and will feel its consequence for many years if for no other reason than the destruction and ruin brought on by the liberation of her territory.

The unfortunate Army of 1940 has often been the object of sarcasm. It was the Army of that "phony war"; the Army which would not have stopped in its headlong retreat if it had not been for the Pyrenees Mountains and the sea.

The hasty judgment made against the French troops in the first battle of World War II is unjust.

More than 125,000 Frenchmen died, either on the field of battle or behind the barbed wire of the German camps; 5,000 are still listed as missing; and about 250,000 more were wounded.

Considering that there were about 1,000,000 combat troops, and estimating that 100,000 were killed or wounded under circumstances other than combat, the ratio of those men who fell in action is one to four. That ratio proves the violence of the fighting, even though its duration was short; a few days for some, a few weeks for others.

Judgment against the Army of 1940 is based on erroneous ideas about a mass retreat. Hundreds of thousands of men were seen moving south over the roads of France. However, the men who made up this confused mass of humanity were, in reality, part of the three million men who belonged to the communications zone; the men who were responsible for supplying the combat troops, and whose organization and armament did not fit them for fighting.

The combat troops were unable to reach the "southern zone" for they had either fallen on the firing line, been picked up by the enemy in his constant advance, or had been taken to Germany as prisoners after having resisted and been outflanked and encircled.

There were break-downs of morale and panic during the first clashes on the Meuse; but is not the baptism of fire always accompanied by such incidents? The first reverses in 1914 were accompanied by the same break-downs. Nevertheless, a few weeks later we saw the miraculous recovery on the Marne.

Why did not the French Army of 1940 also have its Marne? Why was it so brutally and so completely defeated?

In June 1945, at the time of the armistice, the explanations given were insufficient matériel and units.

Today, we cannot believe that there was as great a deficiency in armament as to have caused such a disaster.

It is not true that the Allied armies had fewer tanks than the German Army. Numerous studies based on the official archives which have appeared in specialized French and foreign reviews, such as the *La Revue de Defense Nationale* and the *Revue Historique de l'Armee*, have proved this point. The initial figure of 2,000 French and British tanks as opposed to 7,500 German tanks has since

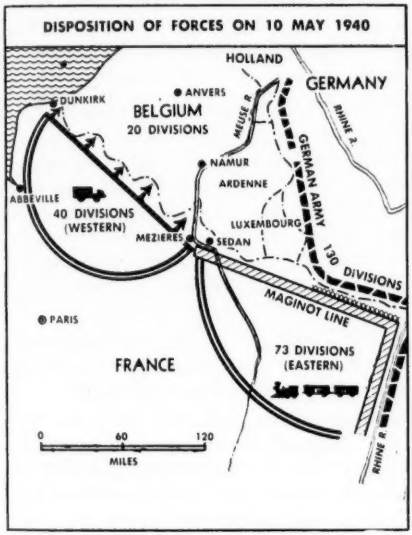
been changed to 3,500 heavy, modern tanks for each side.

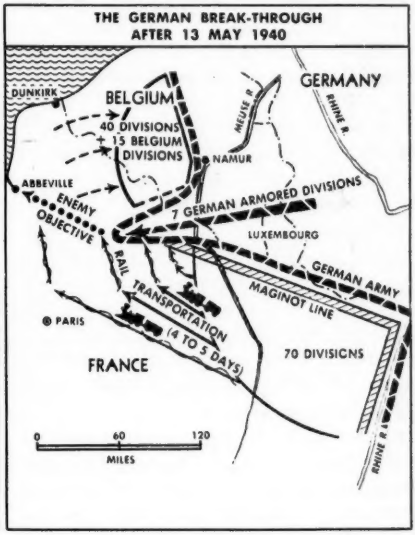
It is not true that the German divisions were numerically superior to the French and British divisions. Each side had 130 divisions for the battle and an equivalent number of guns and automatic weapons.

The true decisive advantage possessed by the Germans was that they always went into action prepared. Thus, on the Meuse, 11 French divisions, inclusive of reserves, supported by 400 tanks, defended a sector which was attacked by 7 German armored divisions with 1,800 tanks and followed by 26 infantry divisions.

Of all the arms, only the Allied air forces were numerically inferior to the enemy. However, this disadvantage was not as great as originally believed. Both the Allies and the Germans could count on 700-800 available fighter planes, The Germans had 1,000 bombers and France and Britain had 530 bombers.

However, it is apparent from studies published in June 1940 by the *Revue de Defense Nationale* that more planes could have been made available to the Allies. About 50 percent of the planes, produced from the time of the mobilization until May 1940, were stored in rear areas or left unarmed. Thus, 1,500 planes were on the ground and were later captured by the enemy in storage areas where they awaited completion of their armament.





The idea that the decisive battles would not be fought until 1941 or 1942 had motivated this storage policy. The same conviction, without any doubt, had motivated the shipment of 235 *Renault H-35* tanks to Allied countries. These were the first tanks to come off the production line since August 1939 and would have supplied five complete modern battalions. In addition, 800 antitank guns, half of which were late models; 175 improved antiaircraft guns; 500 pieces of artillery; 600 mortars; and other equipment were shipped out of the country.

The supposition that decisive battles would not be fought until 1941 or 1942

was unfortunate. The concept concerning the form that the operation would take was fatal. Indeed, the French General Staff had deduced no strategic lesson from the Polish defeat.

Of the many theories held by the French High Command concerning the Germans' plan of operation, only one proved to be correct. That theory was that the invasion of Belgium would be made by armored forces on the plains north of Namur. The engagment of large armored units in the wooded regions of the Ardennes had not even been studied.

In the east, 45 divisions were distributed along the Maginot Line and the Rhine River with 28 divisions in reserve; a total of 73 divisions. In spite of the protection offered by the Maginot Line and the excellent barrier offered by the Rhine, two-thirds of the French Army was located in this area.

In the west, 30 French divisions and 10 British divisions were distributed along the line from Mezieres to the sea. This force, comprising the best trained and equipped units of the French Army, was assigned the mission of penetrating rapidly into Belgium as soon as the Germans attacked and halting them on the Antwerp—Namur—Meuse line.

The Mezieres—Sedan area formed the pivot for this maneuver. In view of the fact, however, that the Germans' main effort was not anticipated through the Ardennes, this hinge was held only by distended secondary troops supported by very weak reserves.

On 10 May 1940, the main striking force of the 40 divisions on the west rushed forward to meet the Germans in Belgium and Holland. This movement left only the forces in the east to meet the unexpected German effort through the Ardennes on 13 May. However, only 1 of the entire 73 divisions was not dependent on rail transportation for making the move. Four days was required to make the move by rail and that was longer than it required the Germans to make the break-through and envelop the 40 divisions which had moved as far as Namur and Antwerp.

Of the 73 divisions in the east, only the 3d Motorized Division arrived south of Sedan by the 14th, the day after the attack. The 2d Division, which had been alerted for the move immediately after the attack on the 13th, did not reach Rethel until the 17th. By that time, the Germans were crossing the Oise River 50 miles farther to the west.

The French Army was cut in two, and the German armored divisions rushed toward the sea without resistance.

From that moment, the battle was lost. The Belgian forces were encircled and hurled back toward Dunkirk, while the French Army, with 40 of its finest divisions gone, stretched out in a cordon from the Maginot Line to the mouth of the Somme.

The Germans, who still retained all their forces, had only to defeat, separately, the various forces defending the center of the country by successively applying crushing numerical and matériel superiority.

The French Army, crushed and reduced to a tenth of its initial strength, moved back as far as the Garonne River and the foothills of the Central Massif of the Alps.

A single, brief, and brutal battle, executed contrary to all the expectations of the French High Command, allowed the Germans to win this major battle of the War in a matter of a few hours.

The Ghost of Douhet

Digested by the MILITARY REVIEW from an article by J. M. Spaight, in the "Royal Air Force Quarterly" (Great Britain) April 1950.

GIULIO Douhet, dead and gone these 20 years, still haunts a world in which the air power of his dreams has gone on living and growing to a stature that would amaze even him. What place have Douhet's 100-pound bombs in the armories of today? They are museum pieces, but some of his ideas are still alive. His hand was to be felt moving in the darkness behind many of the scenes of World War II which he did not live to see. It was a red hand. It did not work for righteousness.

Douhet was the apostle of frightfulness from the air. He made no bones about it. The war of his vision would be "an inhuman, an atrocious performance." It would spread terror through an enemy nation by striking at its great centers of population and thus, by "direct action," would break down all material and moral resistance. He foresaw "panic-stricken people fleeing to the open countryside to escape the terror from the air. . . . The time would come when, to put an end to horror and suffering, the people themselves, driven by the instinct of self-preservation, would rise up and demand an end of the war. . . . It would be a war without discrimination or mercy. . . . The limitations applied to the so-called inhuman and atrocious means of war are nothing but demagogic hypocrisies. . . . Poison gas will be largely used in the war of the future."

It is not a pretty creed. It is one from which civilized society will recoil immediately. It was never of a nature to commend itself to responsible statesmen. In the House of Commons on 21 June 1938, Prime Minister Neville Chamberlain showed how repugnant such a doctrine of "direct action" is to our way of thought. He said:

"We cannot too strongly condemn any declaration on the part of anybody, wherever it may be made or on whatever side it may be made, that it should be part of a deliberate policy to try to win a war by demoralizing the civilian population through a process of bombing from the air. That is absolutely contrary to international law." Nor was it the policy of the country with which we were to find ourselves at war a year or so later.

Göring and his air force may have played with the fringe of the idea, but Hitler would have none of it, and it was Hitler who for 12 years dictated policy in Germany.

There is a good deal of evidence that Hitler set his face against terrorization. "Terror raids by the *Luftwaffe* have small value and accomplish little," he said at a conference of his advisers on 8-9 January 1941. At an earlier conference, on 14 September 1940, he had stated that deliberate attacks on residential areas were to be reserved "as a final means of pressure and as a reprisal for British attacks of this nature."

There is a passage, too, in General Jodl's testimony at Nürnberg, which is worthy of attention. It was the more significant because it was not in Jodl's interest to whitewash Hitler, yet he stated definitely and without challenge that Hitler was always opposed to "air war against the population." He did his utmost to avoid it, Jodl claimed, and it was not he who began it.

"Unstrategic" Bombing

"What!" a reader may exclaim. "Not

begin it? What about Warsaw and Rotterdam? Did not Hitler deal with these towns in the Douhet way?" The reply is that neither at Warsaw nor at Rotterdam was the bombing strategic—that is, it was not the kind of bombing which Douhet contemplated. It was tactical and designed to compel the surrender of the garrison holding the town; whereas no question of the capture of a defended place arises in strategic bombing. The bombardments of Warsaw and Rotterdam were, in fact, relics of an older, pre-Douhet, practice of war. They were closely akin, for example, to some bombardments of the Franco-Prussian War of 1870-1871.

In that War, the city of Strasbourg was pounded by German guns for weeks on end. When regular siege operations were begun, General von Werder directed his artillery to shell the works by day and *the town by night*. The German official history of the War was quite candid about the reason. It said:

"A serious cannonade from the siege batteries upon the closely built town, sparingly provided as it was known to be with bombproof shelters, would overawe, to a considerable degree, the less trustworthy parts of the garrison, and would probably induce the inhabitants to compel the governor to surrender the fortress."

The result was that about three-quarters of all the private houses in the town were destroyed or damaged, 10,000 people were made homeless, and 1,700 civilians killed or wounded. Public buildings fared badly. The famous library was wrecked and 400,000 volumes and 2,400 manuscripts, many of them priceless, were destroyed by the Prussian cannon.

Other French towns were also shelled indiscriminately in that War. At Soissons, far more damage was wrought in the town than in the defenses. At Longwy, all the public buildings were destroyed and nearly every house was damaged. At Péronne, "when half the houses had been demolished, the commandant, after a 12-day's bombardment, which had injured neither the walls nor the guns nor the soldiers in the garrison, gave in." In Paris, the Invalides, the Sorbonne, the Panthéon, the School of Law, and the Garden of Medical Botany suffered severe damage. In various towns, churches were demolished by shell fire.

The losses referred to above were trival in comparison with those caused by bombing in 1939-1945. True, but the artillerists did their best—or worst—with the weapons available, and it is the principle involved that matters. The practice of war allowed the bombardment of a defended town in *all* its parts. It was recognized, with reluctance, by jurists; W. E. Hall referred to it in his great work on *International Law* as "a measure of peculiar cruelty," but added that "for the present it is sanctioned by usage, and it was largely resorted to during the Franco-Prussian War of 1870." Probably it will always be resorted to when a defended town resists attempts to capture it. What is new and deplorable is the extension to strategic bombardment of a practice that was applicable only to tactical operations. So extended, the practice is freed from the natural limitations imposed upon it by the circumstances in which tactical attack is possible and becomes a menace to every town, however far removed from the theater of land or naval operations. In what degree the extension has been due to the abiding influence of Douhet is not easy to determine.

Douhet has been branded by a distinguished military writer, Major General J. F. C. Fuller, in his *History of the Second World War*, as the true author of the "unstrategic" bombing, of which

there were numerous instances in the late War. Fuller has explained more precisely what he means by this term in an article in an American military journal. Broadly, he means by it bombing designed to terrorize the enemy nation into submission, more particularly by means of indiscriminate attacks on centers of population.

Instead of striking at the cities an air force should concentrate, Fuller holds, on "the sources of industrial and military energy and the means of industrial and military movement. In other words—coal, oil, and transportation." What he says certainly seems to receive corroboration from the reports of the United States Strategic Bombing Survey; but he goes too far in condemning all attacks on cities, and he is not always accurate in his facts. In the article in question, he takes the United States Air Force to task for the "obliteration" of Hildesheim, "one of the most perfect examples of medieval towns in Europe and possessing no military significance (the railway junction is outside the town)." But the raid which wrecked Hildesheim—there was only one—was a British raid. It was a daylight raid, on 22 March 1945, and there was a *Mustang* escort, which may have led to the misunderstanding, but undoubtedly the bombers were *Lancasters*.

Another example, which General Fuller gives in his article of a town subjected to "unstrategic" bombing, is Dresden. It was attacked twice on the night of 13 February 1945, by separate all-*Lancaster* forces, and again by American bombers on 14 February. It was terribly mangled, most of the destruction being caused by the first *Lancaster* attack. The damage was largely due to fire; 650,000 4-pound incendiary bombs were dropped in the city, as well as hundreds of 4,000-pound bombs and some 8,000-pound bombs. They were dropped in the center of the city, in the Altstadt, the area in which stood the famous Zwinger Museum, the Opera House, the Frauenkirche, the Dreikönigskirche, the Schloss, and other beautiful buildings. All went up in flames. The heart of Dresden was burned out. There were 27,000 houses and 7,000 public buildings destroyed, and more than 20,000 people killed. The death roll was swollen by reason of the presence in the city of refugees from Eastern Saxony, who had fled before the Russian invasion. The official reasons given for the raid—that it was an important industrial town and the center of the railway network serving the German armies facing Marshal Konev's Soviet forces—would have carried more conviction if the factory quarter and the railways had been the aiming points, but they were not. The factory district is in the suburb of Plauen, well to the west of the city, and the main railway station nearly a mile to the south of the center of attack.

True Strategic Attacks

It is a sad story, Dresden, but it is not the whole story. Take another city, one comparable in size to Dresden (each had about 650,000 inhabitants) but in all other respects utterly unlike it: Essen. While Dresden was practically defenseless, Essen was one of the most powerfully defended fortresses in Europe. It was truly a fortress, a *place d'armes*. And it was, for an enemy, the most dangerous industrial town in Europe. It was, more than any other, the center and source of German armament. Here, again, the bombs went down in the heart of the town, but the heart here happened to be the Friedrich Krupp Cast Steel Works, not the baroque old market of the splendid Saxon city. That was what made the difference. Krupp was Essen and Essen was Krupp. They could not be disentangled. Groups of homes for Krupp's employees were scattered here and there throughout

the town. If ever there was a town the bombing of which was justified militarily it was Essen. We need not be afraid to have *that* city's skeleton taken out of our cupboard. To describe such bombing as "unstrategic" is surely an abuse of terms. To say that if our civilization is to be preserved the Essens of the world must be spared is to come close to talking nonsense. Essen was not unique. Its relation to Krupp was not very much different from that of Düsseldorf to the Borsig Rheinmetall Works; Duisburg-Hamborn to the August Thyssen Steel Works; Oberhausen to the Good Hope Smelting Works; Bochum to the Bochum Company; Ludwigshafen to the I. G. Farben Industries; Russelsheim to the Opel Engine Works, or various other towns that could be named to the big industrial concerns in whose plants wheels turned, and hammers rose and fell, without ceasing to serve the needs of Germany's war machine. It is in such cities that the battle begins, the prefabricated battle of which the first shots are fired in the workshops.

The German towns which were attacked varied from Essen at one end of the scale to Dresden at the other. To assume that they were all of like character, to discuss the bombing of them in general terms, and without differentiating between those whose activities were lethal and those that were comparatively innocuous, is to oversimplify an inherently complex question. The towns that were studded with war industries were sound strategic objectives. Logically, that must be so. If bombing is admitted to be strategic when it is directed against an oil plant or a railway junction, it is so, presumably, because it keeps out of the line of battle munitions (or reinforcements) which would otherwise be there. Why, then, is it not strategic to achieve the same result by preventing the munitions from being made, or, alternatively, why should it cease to be strategic if the factory making them is an urban one? It may be that it would be better policy to attack *movement* rather than *production*, but it does not follow that the attack on production is not strategic. That is a question of priority of targets, not of fundamentals. The attack on a military objective such as a war factory would cease to qualify as a strategic one only if it were made the excuse for ranging far beyond the locale of the objective and resorting to widespread devastation for the purpose of undermining the morale of the citizens, the general public, or, in Douhet's own words, "To hammer the nation itself to make it give in."

Attacking Morale

Attack on morale is not, in all circumstances, to be condemned. To "terrorize" the war workers so that they desert their benches, forges, or assembly lines is a perfectly legitimate act. The morale of such workers might be said, indeed, to be itself a military objective. It is a totally different matter to attack the morale of the civil population as a whole, to try to bludgeon it into defeatism by wholesale and indiscriminate massacre and destruction. That is a way of war which is far older than Douhet. It was the way of Genghis Khan and Tamerlane.

It was perhaps fortunate in some respects that, as a morale-breaker, bombing was not particularly effective in World War II. There were no panic-stricken evacuations of cities as Douhet had foretold, though the attacks were on a far greater scale than he had foreseen. The urban population stood up to their ordeal with unexpected fortitude. Cities proved themselves to be exceedingly tough. Hamburg, which was subjected to some terribly destructive attacks at the end of July 1943, had recovered 80 percent of its former productivity in 5 months. The forecast of a whole people

arising in its wrath to force its government to make peace, and thus to end the terror from the air, was far removed from reality.

The Atomic Bomb

Douhet can be imagined playing his last hand not long before the War came to an end. The atomic bomb was being made in America. It combined, in itself, the explosive, incendiary, and toxic qualities which he held that the ideal air attack should possess, in the form, he thought, of separate bombs, dropped in series. Fate intended the bomb, one feels, for use not against one of the main islands of Japan but against two small stepping-stone islands which were, in the event, the scenes of the bloodiest fighting of the Pacific War. It would have crushed the opposition in them at a blow. But the bombs were late and before they were ready the islands were taken, one of them on 14 March 1945, and the other on 21 June. Then one can fancy that Douhet seized his opportunity. He saw the possibility of his vision of ripped and gutted cities coming true. He contrived that the names written on the two bombs—there were only two in existence—should be changed. Hiroshima and Nagasaki were substituted for the original Iwo Jima and Okinawa. So the curtain went up for the grim tragedy in Kyushu. Was there a ghostly chuckle of satisfaction in the wings, or was the magnitude of the disaster too great for that?

Japanese Strategy in the Pacific

Translated and digested by the MILITARY REVIEW from an article by Edmond Delage in "Revue Militaire Suisse" (Switzerland) August 1950.

AN ESSENTIAL factor for achieving victory in war is the ability to determine the exact nature of the war to be conducted and the ability to adapt the means to the objective.

Because Hitler transgressed this fundamental rule, he failed to achieve victory. It was for the same reason that Japan also failed.

How was it then that a country which had remained relatively weak (compared with the United States) from the military, demographic, and industrial points of view assumed the risk of a struggle to the death against the most powerful nations on the earth?

A Limited War

On 7 December 1941, when Japan started the War in the Pacific, Prime Minister Hideki Tojo and his military and naval chiefs visualized only a limited war. In spite of the promises made to the Axis leaders, they had no intention of participating in a world-wide conflict. They intended only to conduct a war that would be exclusively Japanese.

Prime Minister Tojo and the Japanese military and naval chiefs had remained the disciples of the campaigns of 1895 and 1904-1905. In those campaigns, the Japanese leaders realized that they could never triumph over China and Russia unless they confined themselves to a limited war adapted to their forces.

The same laws governed Japanese strategy in 1941. Japanese military and economic power had increased greatly since the Russo-Japanese campaigns, but in spite of the feverish efforts of the 5 years preceding World War II, her industrial power did not exceed that of a country the size of Belgium. Japan still had to rely on other countries for her

essential raw materials: oil, iron, zinc ore, chromium, and rubber.

The "Chinese Incident," at the Marco Polo Bridge in Peiping, led Japanese policy into a blind alley. It was impossible for her to withdraw from China without "losing face," and yet, by cutting the vital Chungking life line—the Burma route—there was danger of a clash with the British Empire. Yosuke Matsuoka, minister of foreign affairs, told Hitler, on 4 April 1941, that to attack the British and Dutch possessions in the southern zone of the Far East would be the equivalent of declaring war on the United States.

A Need for Raw Materials

The map and war maneuvers, in Tokyo, in 1941, ended with a revival of the strategy crowned with success in 1895 and 1904-1905. Admiral Yamamoto consented to the pursuit of but a single objective; the isolation and *blitz* attack of Borneo, Java, Sumatra, Malaya, and Burma. This conquest was to have as its result the elimination of Japan's weakness, lack of raw materials.

An attack on the Philippines was not imperative and could be expected to bring nothing in return but an attack from the United States. Despite this fact, Admiral Osami Nagano, chief of the naval general staff, won out over the protests of Admiral Yamamoto and obtained permission to nip in the bud the American power in the Pacific by a surprise attack on Pearl Harbor. This attack was not to include offensive action against the Hawaiian Islands, but only such action necessary to prevent American intervention during the first 6 months' operations towards the southern seas.

The surprise attack on Pearl Harbor was facilitated by the fact that the attention of the United States was turned away toward the narrow seas of China where large movements of naval vessels could not be concealed.

The unexpected destruction of the *Prince of Wales* and the *Repulse*, an event which was almost fatal to the British Navy, contributed to Japanese strategy in gaining control over the area between the Indies on the west and Australia on the east.

Extended Operations

In spite of their apparent triumph, the Japanese naval forces found themselves faced with the same terrible dilemma that faced Admiral Heihachiro Togo during the Russo-Japanese War—the necessity for retaining possession of the western Pacific and maintaining a central reserve capable of repelling any counterattack coming from the United States. This threat carried with it the essential condition that the main body of the Japanese fleet should suffer no serious losses. The Japanese Admiralty, therefore, kept its large naval vessels in the rear and made use only of forces which were more easily replaceable.

The surrender of Bataan, on 8 April 1942, and Corregidor, on 6 May 1942, marked the end of the conquest of the whole of the strategic system. The stubborn resistance of the Americans, however, necessitated a Japanese effort twice as long as had been anticipated when planning this operation during the preceding year.

This apparent triumph—even after the fall of Singapore and the victory of the battle of Java—did not save the Japanese strategists from a cruel and embarrassing situation. Should they, or should they not, penetrate into the Indian Ocean?

The British naval forces had taken advantage of the lull to strengthen their defenses, but they continued to be weak. The British naval units, which had been rushed from the Mediterranean, were outmoded and possessed antiquated aircraft.

A month after the fall of Java, Admiral Sir James F. Somerville, British commander in chief in Indian waters, was obliged to fall back as far as Kilindini on the east coast of Africa. However the Ja-

panese did not feel capable of following him.

The fate of the War was being shaped at that moment. The Allies showed themselves able to maintain, between the two totalitarian *blocs* of Europe and the Far East, the immense barrier of Russia, the Near East, India, and China. If the Japanese Navy had been able to cut the Anglo-American life line in the Indian Ocean, the Russians could not have received the means necessary for their resistance at Stalingrad, nor the British for their offensive at El Alamein.

At this moment, the Japanese chiefs did not have the courage to abandon their strategy and gamble everything on the chances of obtaining a victory in the Indian Ocean, which would have, perhaps, saved their partners in Europe.

They preferred a limited war and the retention of their conquests. As a result they lost everything and were not able to act anywhere. Australia was too large a mouthful for them, but they could have at least tried to take Port Moresby, the strategic center of its northern defense, by circumventing New Guinea. However, they did not dare take the risk involved in such an attack.

Early in May, they resumed their advance toward New Caledonia and New Zealand; but the Americans, now reinforced, inflicted two defeats on them—at Tulagi and in the Coral Sea.

The Turning Point

At this time, the Japanese chiefs should have concentrated their efforts on some one decisive point, but they dispersed them in four directions—Madagascar, Sydney, the Aleutians, and Midway. It was at Midway that the main body of their carriers fell into an American trap and were lost. Japanese forces then resumed their attack in the crucial zone of New Guinea and the Solomons.

In these areas they suffered crushing reverses toward the end of October and November, losing two line vessels, numerous transports, and 30,000 men. The stinging Japanese defeat at Guadalcanal marked a decisive turn in the War in the Pacific and, for the Americans, the change-over from prudent defensive to audacious offensive action.

Fighting a Losing Battle

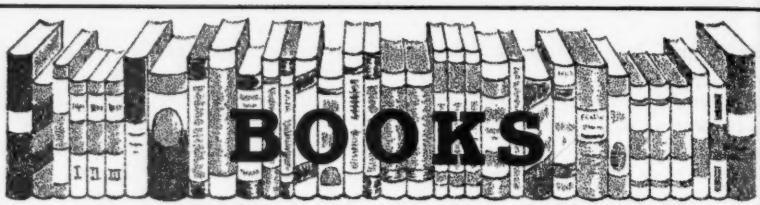
The Japanese chiefs still hoped to be able to wear down the Allies and prevent them from penetrating the insular fortress which protected the heart of Japan; a grave error.

The annihilation of a great convoy of 30,000 men in the Battle of the Bismarck Sea and the attacks from carrier-based aircraft had telling results on Japanese operations. It was, however, only after the loss of Truk, center of their push toward the southeast, that the collapse of their strategy became obvious to the Japanese. The Allies had required only 3 months to bring this about—from mid-November 1943 to mid-February 1944.

After the loss of the Gilbert and the Marshall Islands, the Japanese were no longer capable of slowing down the advance of the Allies.

Japanese resistance dragged out for more than a year, but all they could hope to accomplish was to temper their defeat by the vast distances involved. However, this concept was nullified by the all-powerful American logistics system, a decisive element in the victory across the Pacific.

The Nipponese strategy, committed blindly to a war for which Japan did not possess sufficient means and which it believed it could limit, went down under the blows of the Allied forces.



FOR THE MILITARY READER

OUTLINE OF CULTURAL MATERIALS (3d Revised Edition). By George P. Murdock and others. 162 Pages. Human Relations Area Files, Inc., New Haven, Conn. $2.00.

An excellent aid for research in the human sciences, this outline provides a list of cultural, social, and background material available in the Human Relations Area Files (HRAF). It calls attention to a wide range of subjects and provides leads for inquiry that might otherwise be overlooked.

After using the outline to list the subjects of interest in his field, the researcher can visit the files of the HRAF, at nine strategically located universities, to complete his study. This system saves time and effort by doing away with time-consuming, and generally haphazard, library research.

BATTLE REPORT: VICTORY IN THE PACIFIC. By Captain Walter Karig, Lieutenant Commander Russell L. Harris, and Lieutenant Commander Frank A. Manson. 548 Pages. Rinehart and Company, Inc., New York. $5.00.

This is the last of five volumes covering the Pacific naval fighting from the Philippines to the surrender.

The writing is well done and the material gathered is concise and interesting. It does not attempt to interpret the strategy, merely to describe it. The book is fair and well documented and will appeal to both the veteran and layman interested in the over-all phase of naval war in the Pacific.

THE ARMY AIR FORCES IN WORLD WAR II: THE PACIFIC — GUADALCANAL TO SAIPAN. Edited by W. F. Craven and J. L. Cate. 825 Pages. University of Chicago Press, Chicago. $6.00.

The frustrating yet thrilling story of the slow struggle from the shores of Australia to the threshold of the Philippines is told in the same objective, well-organized fashion that distinguished the two previous Army Air Force volumes. This present volume covers the operations of six Army air forces; the Fifth, Thirteenth, Seventh, Eleventh, Tenth, and Fourteenth, and illustrates the sharp contrast in air strategy and tactics as used in Pacific operations with those followed in the European War.

Though widely scattered geographically, these air forces operated under varying conditions which tended to mark each with its own individuality. Emphasis on unity is demonstrated by the fact that all forces were dependent upon a single pool of material resources.

Generous praise is given the Navy and its carrier task forces for carrying the main air burden in the early Pacific fighting, as well as bringing to mind the effective teamwork of the Australians and the New Zealanders with our forces in the island-hopping warfare.

BEHIND CLOSED DOORS: The Secret History of the Cold War. By Rear Admiral Ellis M. Zacharias, U.S. Navy (Ret.) in collaboration with Ladislas Farago. 367 Pages. G. P. Putnam's Sons, New York. $3.75.

AIR POWER: KEY TO SURVIVAL. By Major Alexander P. de Seversky. 386 Pages. Simon and Schuster, Inc., New York. $3.50. (Also in paper cover for $1.00.)

The author of *Victory Through Air Power* provides another provocative and controversial account of air power and military preparedness with his latest book—*Air Power: Key to Survival.*

According to Major de Seversky, ". . . we shall be condemned to a Maginot Line strategy . . . as long as the American people entrust the solution of military problems to strategists of the old school." He believes that long-range air power would be a deterrent force in preventing war, or in case of war, in ensuring victory. He scorns the continuation of "balanced" air-land-sea forces as a delusion of strategy and a waste of time, money, and manpower.

Based on his somewhat questionable facts and figures, Major de Seversky attempts to prove that ground battle is not a necessary prelude to surrender, and that victory can be achieved by long-range air power alone, by striking at the enemy's production potential.

Singling out Russia as the main potential enemy of the United States, the author says that we can never hope to outbuild the Soviets; to match them in the magnitude of their expendable men and machines. Therefore, we must take advantage of our superiority in technical skills and create a supreme long-range air force.

Major de Seversky states that: "Once we relate our military preparations to this reality, we will be forcing any foe to fight *on our terms.* We shall put ourselves, to that extent, in the position of the small company of Spaniards armed with muskets facing hordes of Indians armed with bows and arrows. A nation industrially backward and politically hog-tied cannot hope to meet us as an equal in a contest that is basically scientific and technological. On those commanding heights strategy mirrors a country's stage of development."

Major de Seversky says that if we will muster the mental clarity and the psychological courage to stake our security on supreme air power, we shall assure ourselves not merely of overwhelming strength, but strength of the right kind—the kind that will:

1. Discourage a technologically inferior nation from precipitating war, thus serving as an effective deterrent.

2. Oblige any enemy to fight on American terms, in a medium where our natural qualitative superiority is too obvious to be questioned or ignored.

3. Have the best chance of obtaining a conclusive victory if war does come, because it neutralizes the potential enemy's land might and by-passes his chief advantage—his sheer mass.

4. Leave us after the victory in possession of the force best able to guarantee enduring peace.

While many of the ideas proposed by Major de Seversky are interesting and somewhat convincing, there is a marked tendency to overemphasize the role and power of strategic air forces. Certainly the Korean campaign has refuted many of his statements regarding the value of ground and naval forces.

The author, while considering Russia as the major enemy of the United States, apparently overlooked the possibilities of "fringe" wars by Soviet satellites and the need for air, land, and sea forces in ensuring victory. While air power is definitely an integral part of any victorious all-service team, it can not do the job single-handed.

Although Major de Seversky's thesis on strategic air power can not be accepted in its entirety, it is important to the military reader in again focusing attention upon one of the major issues of our time.

SECRET FORCES. The Technique of Underground Movements. By F. O. Miksche. 172 Pages. Faber and Faber Limited, London. 15 shillings.

This book treats underground warfare methodically and scientifically. It concludes that underground movements have become as much a part of modern warfare as conventional military forces.

The author headed the Operations Planning Department of General de Gaulle's Secret Service during World War II, and played an important part in the underground movement against the German forces in France.

Guerrilla warfare, the author contends, has baffled military leaders, who find its methods incompatible with traditional concepts. International communism, on the other hand, has shown no reluctance in adopting the methods of underground fighting. The book provides an understanding of current political trends and the guerrilla warfare now underway in many parts of the world. The author believes that the world has passed from a period of national wars to one of ideological conflicts.

The book is divided into four parts. First, an outline of underground warfare, showing the importance the Communists attach to it. Second, strategy, showing the dependence of underground activities on the operations of regular armies, terrain, politics, and the traditions and character of peoples. Third, the techniques and tactics of underground warfare. And fourth, defense against underground activities.

Politically and psychologically, the aftereffects of a "People's War" are formidable. It means "complete chaos, a savage struggle in which the end justifies the means, and vengeance, trickery, and even treachery play a great part." Europe today, the author says, illustrates the "dire consequences of the wartime underground struggles."

SMERSH. By Nicola Sinevirsky. 253 Pages. Henry Holt and Company, New York. $2.75.

Edited by Washington newsmen Kermit and Milt Hill from a translation by C. W. Boldyseff, this book relates the author's experiences from late 1944 until August 1945 as an interpreter for a Soviet counterintelligence organization. The title derives from the Russian words "Smert Shpionam" ("Death to Spies"), used to designate the organization.

As a member of the National Alliance of Russian Solidarists (NTS), the author was ordered to penetrate the NKVD to determine what information Soviet intelligence had regarding that pro-Russian but anti-Communist group. To become acceptable for possible service with the NKVD the author served with partisans in his native Carpatho-Russia; acted with the local Communist Party to recruit men for the Red Army; and later, was conscripted himself. Suddenly, and with perfunctory preliminary screening, he was selected to serve with the counterintelligence section of the Fourth Ukrainian Front. Operations as seen by the author in Czechoslovakia and Poland, during the late stages of the war in Europe, make up the bulk of the book. These are isolated, separate, and fragmentary.

A single, sketchy chapter is given to the SMERSH organization. Throughout, the place of SMERSH in Soviet intelligence is never clearly established. Of possible interest to military readers will be the references to Soviet interrogation methods. These continually reaffirm Soviet brutality and bureaucracy. The author infers Soviet counterintelligence is grossly incompetent but effective because of tremendously widespread coverage.

BERNARD BARUCH; Portrait of a Citizen. By W. L. White. 158 Pages. Harcourt, Brace & Co., New York. $200.